

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC,
Petitioner,

v.

ACCUSEARCH TECHNOLOGIES LLC,
Patent Owner.

U.S. Patent No. 11,100,184
Issue Date: August 24, 2021

Title: INTERNET SEARCH RESULTS ANNOTATION, FILTERING, AND
ADVERTISING WITH RESPECT TO SEARCH TERM ELEMENTS

Inter Partes Review No. IPR2026-00288

PATENT OWNER'S PRELIMINARY RESPONSE

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<i>Shopkick Inc. v. Novitaz, Inc.</i> , IPR2015-00279, Paper 7 (PTAB May 29, 2015)	36
<i>Tesla, Inc. v. Intellectual Ventures II LLC</i> , IPR2025-00340, Paper 18 (Director Nov. 5, 2025)	14
<i>Volvo Penta of the Ams., LLC v. Brunswick Corp.</i> , 81 F.4th 1202 (Fed. Cir. 2023)	44, 46

Statutes

35 U.S.C. § 312(a)(4)	15, 34
35 U.S.C. § 314(a)	1, 15, 18, 34

Other Authorities

37 C.F.R. § 42.104(b)(3)	4, 12
37 C.F.R. § 42.104(b)(4)	Passim
37 C.F.R. § 42.107	1

PATENT OWNER’S EXHIBIT LIST

Exhibit No.	Description
2001	Scheduling Order in <i>AccuSearch Technologies LLC v. Google LLC</i> , C.A. No. 25-514-GBW, Dkt. No. 34 (D. Del. Sept. 4, 2025)
2002	Joint Claim Construction Chart in <i>AccuSearch Technologies LLC v. Google LLC</i> , C.A. No. 25-514-GBW (D. Del. April 23, 2026) (without Exhibits B–H)
2003	U.S. Patent No. 9,104,765
2004	June 27, 2017 email from noreply@google.com to gustavo@rzv-ip.com
2005	U.S. Patent No. 10,083,237
2006	November 2, 2017 Notice of References Cited for U.S. Pat. Appl. No. 14/841,078
2007	June 20, 2025 Motion to Dismiss in <i>AccuSearch Technologies LLC v. Google LLC</i> , C.A. No. 25-514-GBW, Dkt. No. 14 (D. Del. June 20, 2025)
2008	August 8, 2025 Motion to Dismiss in <i>AccuSearch Technologies LLC v. Google LLC</i> , C.A. No. 25-514-GBW, Dkt. No. 27 (D. Del. August 8, 2025)
2009	September 5, 2025 Opposition to Motion to Dismiss in <i>AccuSearch Technologies LLC v. Google LLC</i> , C.A. No. 25-514-GBW, Dkt. No. 37 (D. Del. September 5, 2025)
2010	September 19, 2025 Reply In Support of Motion to Dismiss in <i>AccuSearch Technologies LLC v. Google LLC</i> , C.A. No. 25-514-GBW, Dkt. No. 44 (D. Del. September 19, 2025)
2011	Petitioner’s Invalidity Contentions in <i>AccuSearch Technologies LLC v. Google LLC</i> , C.A. No. 25-514-GBW, (D. Del.)
2012	Declaration of Steven J. Reynolds
2013	September 25, 2017 email from noreply@google.com to gustavo@rzv-ip.com [Sealed]
2014	PTAB Default Protective Order
2015	April 30, 2026 email from David Silbert to Steve Reynolds
2016	Declaration of Robert Osann, Jr., dated July 11, 2025
2017	Amendment No. 9 to Google Inc. S-1, dated August 18, 2004
2018	Google, “How our business works,” downloaded from https://about.google/company-info/how-our-business-works/ , last

	accessed May 28, 2026
2019	“Dear Google, Stop Messing With My Search,” November 8, 2011 Blog entry from Karen Blakeman’s Blog, downloaded from https://www.rba.co.uk/wordpress/2011/11/08/dear-google-stop-messing-with-my-search/ ; last accessed May 26, 2026.
2020	“6 Ways to Reduce Irrelevant Results on Google Search,” Tina Sieber, www.makeuseof.com , April 18, 2010, downloaded from https://www.makeuseof.com/tag/6-ways-reduce-irrelevant-results-google-search/ ; last accessed May 27, 2026.
2021	“Why Millennials Don’t Know How to Use Google,” Whet Moser, Chicago Magazine, August 23, 2011, downloaded from https://www.chicagomag.com/city-life/august-2011/why-millennials-dont-know-how-to-use-google/ , last accessed May 27, 2026
2022	Statcounter Global Stats, Search Engine Market Share Worldwide from January 2012 through May 2026, downloaded from https://gs.statcounter.com/search-engine-market-share#monthly-201201-202605 ; last accessed May 28, 2026.
2023	Barry Schwartz, “Crossed Out Keywords In Google’s ‘Similar Searches,’” Search Engine Roundtable, December 12, 2012, downloaded from https://www.seroundtable.com/google-similar-crossed-16073.html ; last accessed May 27, 2026.
2024	“Google is Now Showing ‘Missing’ Keywords in SERPs,” www.aaronrobb.ca , December 2013, downloaded from https://aaronrobb.ca/google-showing-missing-keywords-serps/ ; last accessed May 27, 2026.
2025	Alphabet Inc. 2018 10-K, dated February 4, 2019.
2026	Claim chart of Google’s search engine against the challenged claims of the ’184 Patent
2027	Google, “Ten Things We Know to Be True,” downloaded from https://about.google/company-info/philosophy/ ; last accessed June 5, 2026.

Pursuant to 35 U.S.C. § 314(a) and 37 C.F.R. § 42.107, Patent Owner AccuSearch Technologies LLC, (“AccuSearch” or “Patent Owner”) files this Patent Owner’s Preliminary Response setting forth merits and non-discretionary reasons why institution of the Petition for *inter partes* review (“IPR”) of claims 1-22 of U.S. Patent No. 11,100,184 (“the ’184 Patent”), as requested by Google LLC (“Google” or “Petitioner”), should be denied.

I. INTRODUCTION

The Petition fails for at least four reasons. First, no asserted ground renders obvious the limitation that the annotation is “comprised of an annotation showing the at least one search term element missing in the second webpage and one or more of: a title for the second webpage, an Internet link for the second webpage, an excerpt of the second webpage, or a URL for the second webpage, and wherein the annotation is comprised of a text representing the at least one search term element.” Ex. 1001 [’184 Patent], cl. 1[G]. For grounds 1A through 1D (Bates-Bhagat), Bates’s correlation indicator is a colored bar, but the bar does not comprise a missing search term element. *See* Ex. 1010 [Bates], [0033]–[0034]. Moreover, Bhagat displays strikethrough text only in an alternative-query header presented after a zero-results search. The strikethrough in Bhagat indicates which term Bhagat’s system removed from the user’s original query. It does not show that any individual referenced webpage lacks that term. *See* Ex. 1011 [Bhagat], 1:58–

2:4, Fig. 2.

For grounds 2A-2D (Wang-Mills), Wang teaches only keyword relaxation—that is, relaxing searches so that returned results are not required to contain all keywords in the search query. It does not disclose the claimed annotation. Ex. 1005 [Wang], Abstract, [0014], Fig. 5. And Mills Figure 2 depicts strikethrough only in the altered-search-string header. Ex. 1006 [Mills], Fig. 2. But the strikethrough-altered string is a query-level group label; it is *not* the claimed annotation within an individual search result. Ex. 1006 [Mills], 6:38–46.

Petitioner’s expert, Dr. Bederson, argues that a POSITA would have understood Bhagat’s strikethrough or Mills’s altered-string display could be modified to comprise the missing-term element. Pet., 20, 78 (citing Bederson Decl. ¶¶ 114-115, 299-301). But the Petition relies on expert testimony from Dr. Bederson to supply the missing limitation to Bates and Wang. Pet., 13-18, 75. Under 37 C.F.R. § 42.104(b)(4) and the USPTO Director’s July 31, 2025, memorandum on Rule 42.104(b)(4) enforcement, expert testimony and general knowledge may not supply a missing claim limitation.

Second, the Petition fails because it does not demonstrate that a POSITA would have combined the references with a reasonable expectation of success. There have always been limitless possibilities for displaying search results. Each of Bhagat, Wang, and Mills addresses a distinct user-interface problem through a

specifically tailored solution. The Petition provides no reason a POSITA would have selected those references or revised them as proposed—especially not to arrive at the claimed per-result missing-term annotation. The Petition is based purely on hindsight.

Third, the invention of the '184 Patent exhibits objective indicia of nonobviousness, including at least long-felt need and commercial success. Search engines in the 2008–2011 time frame returned voluminous search results, many of which were irrelevant or did not contain one or more of the search terms in the query—a long-felt need for users to be able to quickly determine which results were actually relevant. The inventor of the '184 Patent solved this need by inventing a system where each individual search result would include annotations indicating which search terms are missing from each search result.

The invention of the '184 Patent has enjoyed tremendous commercial success. Google adopted the claimed missing-term annotation in its market-leading search engine in or around December 2012, modified it in or around December 2013, and has maintained it through the present. Other search engines followed suit. Microsoft Bing deployed similar functionality by at least 2020. Accordingly, the '184 Patent demonstrates objective indicia of long-felt need and commercial success.

Fourth, the Petition fails because Petitioner has advanced inconsistent claim

construction positions in this IPR from the positions it has taken in the district court, thus failing to satisfy 37 C.F.R. § 42.104(b)(3)'s non-discretionary requirement that the Petition identify "how the challenged claim is to be construed." The Petition alleges that "[c]laim terms are given their ordinary meaning in light of the specification and prosecution history." Pet., 4 (citing 37 C.F.R. § 42.100(b)). However, in the related district court litigation, Petitioner has proposed express constructions for several dependent claims and argues that ten different claim terms (including terms present in every independent claim) are invalid as indefinite. Accordingly, under the Director's precedent in decisions like *Revvo* and *Ford Motor Co.*, the Petition fails.

For each of these reasons, and for those developed below, the Petition fails to demonstrate a reasonable likelihood that any challenged claim is unpatentable, Institution should therefore be denied.

II. THE '184 PATENT

The '184 Patent was filed on December 7, 2020, and issued on August 24, 2021. Ex. 1001 ['184 Patent], (22), (45). Through a series of continuation applications, the '184 Patent claims priority to application no. 13/163,614, filed on June 17, 2011, which issued as U.S. Pat. No. 9,104,765. *Id.*, (63). The specification of the '184 Patent is substantively identical to the '765 Patent.

The '184 Patent discloses "systems and methods for Internet search and

related advertising functions.” Ex. 1001 [’184 Patent], 1:43-44. In particular, the ’184 Patent relates to providing Internet search result annotation and filtering for missing search terms. *Id.*, Title. The claimed invention allows users to “annotate and/or filter their search results to delineate and/or remove references to sites that offer unwanted or irrelevant categories of information and as a result provide the user with a set of search results that offer and/or emphasize information of substance on their search topic.” *Id.*, 3:15-18.

The ’184 Patent is directed to multiple improvements to Internet search technology existing as of its earliest priority date (on or before June 17, 2011), when Internet search pages frequently presented results that did not offer the information the user sought. *See e.g., id.*, 1:48-60. *See also* Ex. 2016 [Osann Decl.], ¶¶ 13-15. Such prior art systems and methods contained URL links to webpages containing irrelevant information or that did not contain the specified search terms. *Id.*, 2:20-23. But in such prior art systems, users could not know that the presented results did not contain specific search term elements unless they clicked on the URL links and visited the webpages, often causing the user to waste time. Ex. 2016 [Osann Decl.], ¶¶ 8, 48, 14-15.

To solve this problem, the ’184 Patent discloses and claims inventions that annotate results to show when some of the search terms entered by a user are missing from the webpage located at a URL returned by the Internet search and

presented on the search results page. *See, e.g., id.*, 9:34-64. One embodiment involves determining the presence of search term elements in a webpage located at a search result URL. *Id.*, 6:11-15; Ex. 2016 [Osann Decl.], ¶¶ 35-39, 42-48.

The '184 Patent Figure 5 illustrates an annotation showing which search terms are missing from a URL and which search terms are present:

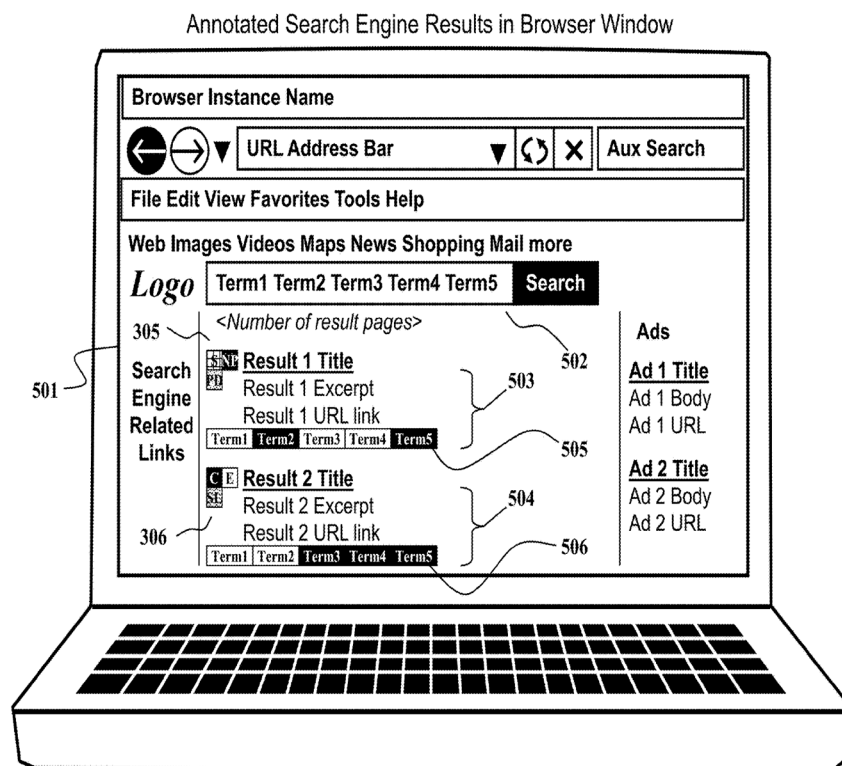


Figure 5

Id., Fig. 5. In Figure 5, “[s]earch input bar 502 contains five exemplary search term elements” and “search result groupings 503 and 504 contain search term elements annotations 505 and 506 indicating for example which search term elements actually appear on the webpage located at the search result URL link.” *Id.*, 10:12-

19. “[S]earch term elements [in 505 and 506] which are present might be shown as black text on a white background, with those search term elements that are not present shown with white text on a black background.” *Id.*, 10:18-22. Thus, the individual search result grouping contains annotations indicating which search terms are missing from the returned URL and which search terms are present in the returned URL.

A. Claims of the ’184 Patent

Claim 1 of the ’184 Patent is reproduced below:

Claim	Claim Language
1(Pre)	In an Internet search system for displaying search results during an Internet search process, the search results being generated based on user-specified search term elements, where at least one search result references a webpage that is missing at least one search term element, a method for providing an interactive graphical user interface for the user to readily discern such search result without opening its referenced webpage, the method comprising:
1A	receiving, on a server, a first search request submitted via the Internet by a user operating a computing device with a display screen, wherein the first search request is comprised of one or more search term elements;
1B	generating a plurality of search results based at least in part on the submitted first search request, wherein the plurality of search results is comprised of:
1C	(i) a first type of search result which references a first webpage that contains all submitted search term elements; and
1D	(ii) a second type of search result which references a second webpage that is missing at least one submitted search term element;
1E	causing the display screen to display the first and second types of search results on a search results webpage;

1F	causing the display screen to display the first type of search result as a first search result grouping, wherein the first search result grouping is comprised of one or more of: a title for the first webpage, an Internet link for the first webpage, an excerpt of the first webpage, or a URL for the first webpage, and wherein the first search result grouping does not include any annotation for missing search term elements;
1G	causing the display screen to display the second type of search result as a second search result grouping, wherein the second search result grouping is comprised of an annotation showing the at least one search term element missing in the second webpage and one or more of: a title for the second webpage, an Internet link for the second webpage, an excerpt of the second webpage, or a URL for the second webpage, and wherein the annotation is comprised of a text representing the at least one search term element; and
1H	wherein the annotation enables the user to readily discern, without opening the second webpage and navigating away from the search results webpage, that the second webpage is missing the at least one search term element, and by not opening the second webpage a faster execution is enabled for the Internet search process.

See Ex. 1001, cl. 1.

Limitation [1G] requires the “second search result grouping is comprised of an annotation showing the at least one search term element missing in the second webpage and one or more of: a title for the second webpage, an Internet link for the second webpage, an excerpt of the second webpage, or a URL for the second webpage, and wherein the annotation is comprised of a text representing the at least one search term element.” As discussed below, this limitation is missing from the prior art.

Independent claims 7, 12, 17 (computing-device systems) recite materially the same limitations as claim 1, framed respectively as a method and as an

apparatus. The [1G] limitation appears as [7I] in claim 7, as [12H] in claim 12, and as [17I] in claim 17, in each case with the same operative language, requiring that the annotation “comprised of a missing search term annotation ... wherein the missing search term annotation is comprised of a text representing at least one search term element missing in the second webpage.” *Id.*, cls. 7, 12, 17, 19.

Independent claim [19D] and [19E] have substantially the same operative language, except as part of a first search result grouping. *Id.*, cl. 19. Petitioner’s mappings for claims 7, 12, 17 and 19 cross-reference its mapping for claim 1. *See* Pet., 44-51, 62-63, 66-67, 93-98, 102-105; Bederson Decl. ¶¶ 164, 196, 253, 258, 339, 353, 379. Thus, Patent Owner’s arguments regarding [1F] apply equally to [7I], [12H], [17I] and [19D-E].

The dependent claims (2-6, 8-11, 13-16, 18, and 20-22) add features such as responsiveness to descendant webpages (2, 6, 11, 16, and 20), a selectable filtering function (3, 8, 13, and 21), search-term-related advertisements (5, 10, and 15), specific annotation text formats (2 and 18), and the inclusion of a computing device within the system (4, 9, 14, and 22). *Id.*, cls. 2-6, 8-11, 13-16, 18, and 20-22. Each dependent claim incorporates by reference all the limitations of its independent claim, including [1G] (and [7I], [12H], [17I] and [19D-E]). The dependent claims are therefore patentable for at least the same reasons as the independent claims. *See In re Fine*. 837 F.2d 1071, 1076 (Fed. Cir. 1988) (finding

dependent claims nonobvious if the independent claims from which they depend are found nonobvious).

III. LEVEL OF ORDINARY SKILL

Petitioner asserts that a person of ordinary skill “would have had a bachelor’s degree in computer science or a related field, plus at least two years of industry or graduate-level experience with designing user interfaces for Internet search engines.” Pet., 4 (citing Bederson Decl. ¶¶ 33–37). Petitioner’s definition is too limiting. The two years of industry or graduate-level experience should include searching, querying, or related technologies (i.e., the technologies encompassed by the claims). The Petition fails under either parties’ proposed Level of Ordinary Skill for the reasons discussed below.

IV. CLAIM CONSTRUCTION

In the corresponding district court litigation, Patent Owner has proposed a construction for the term “Internet search” of “plain and ordinary meaning, where the plain and ordinary meaning refers to a general purpose Internet search, such as one offered by an Internet search engine, rather than a search constrained to a particular vendor and product offering (*e.g.*, search offered on amazon.com constrained to products and services offered by Amazon).” Ex. 2002 [Joint Claim Construction Chart], 7–8.

Petitioner has proposed the terms “selectable filtering function that, when selected by the user, causes one or more Internet search results referencing webpages that are missing one or more search term elements to be removed from being displayed on the search results webpage on the computing device” and “descendant webpages” for construction in the litigation. *Id.*, 5-7. For the former, Patent Owner proposes “plain and ordinary meaning. No construction required.” *Id.*, 5.

For “descendant webpages,” Patent Owner also believes no construction is required. *Id.*, 6. However, Patent Owner has proposed alternative constructions of “[p]lain and ordinary meaning; not limited to webpages in the same domain” and “[p]lain and ordinary meaning, where the plain and ordinary meaning means ‘webpages linked from the referenced webpage’” should the district court choose to provide an express construction. *Id.*, 6–7. Claim construction briefing is currently ongoing, and the district court has not yet construed the claims.

The constructions proposed by Patent Owner in the litigation reflect the plain and ordinary meaning of the claim terms. *Id.* Patent Owner does not believe that its proposed constructions in the litigation impact the issues raised in this Preliminary Response. Thus, for purposes of this Preliminary Response, no claim terms need to be expressly construed. However, should the Board determine that “Internet search” or “descendant webpage[s]” require express construction in this

IPR, the constructions proposed by Patent Owner above are appropriate and should be adopted.

Patent Owner reserves the right to propose claim terms for construction should this IPR be instituted, including to address any constructions adopted by the district court.

A. The Petition’s Unexplained Inconsistent Claim Construction Positions Fail Under 37 C.F.R. § 42.104(b)(3)

In addition to supporting discretionary denial (*see* Discretionary Denial Brief (Paper 7), 3-5), Petitioner’s unexplained inconsistent constructions independently fail to satisfy 37 C.F.R. § 42.104(b)(3)’s non-discretionary requirement that the Petition identify “how the challenged claim is to be construed.” The Petition alleges that “[c]laim terms are given their ordinary meaning in light of the specification and prosecution history.” Pet., 4 (citing 37 C.F.R. § 42.100(b)). However, in the related district court litigation, Petitioner has proposed the terms “selectable filtering function that, when selected by the user, causes one or more Internet search results referencing webpages that are missing one or more search term elements to be removed from being displayed on the search results webpage on the computing device” (claims 3, 8, and 13) and “descendant webpage[s]” (claims 6, 11, 16, 17, and 20) require express construction. Ex. 2002 [Joint Claim Construction Chart], 5–7. In addition, in its invalidity contentions, Petitioner

alleges that ten different terms from the '184 Patent—including terms in every independent claim—are indefinite:

184 patent:

- “by not opening the second webpage a faster execution is enabled for the Internet search process” / “thereby saving time and enabling a faster execution of the Internet search process” / “less time is wasted thereby enabling faster execution of the Internet search process” / “by not opening the respective referenced webpage a faster execution is enabled for the Internet search process” / “not selecting the first search result will speed the Internet search process by reducing wasted time” (claims 1, 7, 12, 17, 19);
- “performing AND operations according to search logic guidelines published by the search engine provider” / “for performing AND operations according to published search logic guidelines” (claims 7, 12, 17, 19);
- “contrary to the search logic guidelines for AND operations published by the search engine provider” / “contrary to the published search logic guidelines for AND operations” (claims 7, 12, 17, 19);

See Ex. 2011 [Invalidity Contentions], 72–73.

- “a font representing the text has been altered” (claim 18);
- “the text is shown with one or more lines merged with the text” (claim 18);
- “the text is shown with one or more lines superimposed thereupon” (claim 18);
- “the text is shown within a shaded area” (claim 18);
- “the text is shown with a reversed format” (claim 18).

See id.

For the “selectable filtering function” of claims 3, 8, and 13, Petitioner proposes a construction of “[a]n [option/function] that, when selected by the user, causes the system to display a narrowed set of search results by removing, from the original search results, references to webpages that are missing one or more terms from the user’s query.” Paper 8, Ex. 2002 [Joint CC Chart], 1. For the “descendant

webpage[s]” term in claims 6, 11, 16, 17, and 20, Petitioner proposes a construction of “[a] webpage in the same domain as the referenced webpage and that is reachable by clicking an outbound link on the referenced webpage.” *Id.*, 2. Petitioner has not explained why these terms warrant specific constructions in district court but no construction here—not in the Petition, not in the Bederson Declaration, and not elsewhere in the record.

The Director has explained that such unexplained inconsistency is an independent basis to deny institution. *See Revvo Techs., Inc. v. Cerebrum Sensor Techs., Inc.*, IPR2025-00632, Paper 20, 3–4 (PTAB Nov. 3, 2025) (precedential) (“the Board erred when it determined that Petitioner complied with Rule 42.104(b)(3) by proposing Patent Owner’s district court constructions”), Paper 36 (Director Jan. 26, 2026) (denying institution on remand); *see also Ford Motor Company v. AutoConnect Holdings LLC*, IPR2025-01342, Paper 27 (PTAB May 12, 2026) (informative) (denying institution where the petitioner advanced inconsistent indefiniteness positions). The Director rejected similar inconsistencies in *Tesla, Inc. v. Intellectual Ventures II LLC*, IPR2025-00340, Paper 18, 3 (Director Nov. 5, 2025) (informative), holding that a petitioner’s “statement that it cannot raise indefiniteness challenges in an inter partes review is not a sufficient explanation” for taking inconsistent positions—asserting indefiniteness in district court while seeking plain and ordinary meaning before the Board. Accordingly,

institution should be denied because the Petition does not comply with Rule 42.104(b)(3).

**V. PETITIONER FAILS TO DEMONSTRATE A REASONABLE
LIKELIHOOD THAT ANY OF THE CHALLENGED CLAIMS ARE
UNPATENTABLE**

Institution may issue only on a showing of “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). The Petition cannot make that showing. Each of the eight grounds depends on a showing that the asserted combinations disclose or render obvious limitation [1G]/ [7G]/[12H]/[17I]/[19D-E]. Petitioner’s primary combinations—Bates plus Bhagat and Wang plus Mills—do not disclose that feature, individually or in combination, and Petitioner’s expert testimony cannot supply what the references themselves do not teach. The Petition’s reliance on Dr. Bederson to supply that limitation independently requires denial under 37 C.F.R. § 42.104(b)(4): the Board “shall deny” a petition that rests a claim element on expert testimony rather than on the prior art. *See* Memorandum from Acting Director, USPTO, “Enforcement and Non-Waiver of 37 C.F.R. § 42.104(b)(4) and Permissible Uses of General Knowledge in *Inter Partes* Reviews,” 1–2 (July 31, 2025) (“Director Memo”) (citing 35 U.S.C. § 312(a)(4)).

This Section develops the failure in four parts. Subpart A shows that neither asserted combination discloses or renders obvious the [1G] limitation. Subpart B

shows that, because the Petition supplies that limitation through Dr. Bederson's testimony rather than the references, the Petition independently fails under 37 C.F.R. § 42.104(b)(4). Subpart C shows that the proposed combinations independently fail for lack of a motivation to combine and a reasonable expectation of success. Subpart D addresses the remaining grounds and the dependent claims, which fall with the independent claims.

A. None of the Asserted Combinations Discloses or Renders Obvious Limitation [1G].

Limitation [1G] of claim 1 requires that the annotation is “comprised of an annotation showing the at least one search term element missing in the second webpage and one or more of: a title for the second webpage, an Internet link for the second webpage, an excerpt of the second webpage, or a URL for the second webpage, and wherein the annotation is comprised of a text representing the at least one search term element;” Ex. 1001, cl. 1[G]. The corresponding limitations of claims 7, 12, 17 and 19 are substantively the same in operative language. *Id.*, cls. [7I], [12H], [17I] and [19D-E]. Limitation [1G] requires that the annotation comprise one or more search term elements that are missing in the referenced webpage. Read together with limitation [1G]—which requires that “the search result grouping comprises an annotation and at least one of: a title, an Internet link, an excerpt, or a URL,” *Id.*, cl. 1[G]—the claim requires the missing search-term

element to be part of the annotation, which is itself part of the individual search result grouping.

Neither Bates plus Bhagat (Grounds 1A–1D) nor Wang plus Mills (Grounds 2A–2D) discloses the claimed annotation. Bates places a correlation indicator within the search result grouping, but the indicator is a colored bar *that contains no text*, not a “search term element.” Ex. 1010 [Bates] [0033]–[0034]. Bhagat displays strikethrough text only in a suggested alternative-query header presented after a zero-results search, where the strikethrough indicates which terms Bhagat’s system removed from the user’s original query, not that any referenced webpage lacks the removed term. Ex. 1011 [Bhagat], FIG. 2. Wang teaches only backend keyword relaxation (i.e., searches that do not require a result to contain all keywords in the search query) and discloses no annotation, no display element of any kind that signals keyword presence or absence to the user. Ex. 1005 [Wang], Abstract. Lastly, Mills’ altered search strings, as depicted with strikethrough in Figure 2, appear as headers labeling each *group of results* with the query that produced that group, and not as annotations within any individual referenced webpage. Ex. 1006 [Mills], 6:38–46. None of these references, alone or in combination, discloses the [1I] annotation.

Petitioner attempts to fill this gap with Dr. Bederson’s testimony, arguing that a POSITA would understand how to modify Bates or Mills to supply the

missing claim annotation. Subpart B explains why Rule 42.104(b)(4) does not permit that approach. The subsections below explain why, even if it were permissible to supply missing limitations with expert testimony, the references do not disclose the [1G] annotation under the § 314(a) reasonable-likelihood standard.

1. Bates and Bates-Bhagat (Grounds 1A-1D)

The Bates-based grounds depend on Petitioner’s showing that Bates alone, or Bates in combination with Bhagat, discloses or renders obvious [1G]. Petitioner identifies Bates’s “correlation indicator”—a horizontal colored bar—as the “annotation” required by claim 1[G] and [1H]. Pet., 34–36; Bederson Decl. ¶¶ 142–147. Bates’ correlation indicator does not comprise the missing search-term textual element. Petitioner’s alternative “Bates-alone” theory does not place the missing-term text within any individual search result grouping, and Bhagat’s strikethrough is a query-level label that does not change that result.

a) Bates Correlation Indicator Does Not Comprise the Missing Search-Term Element.

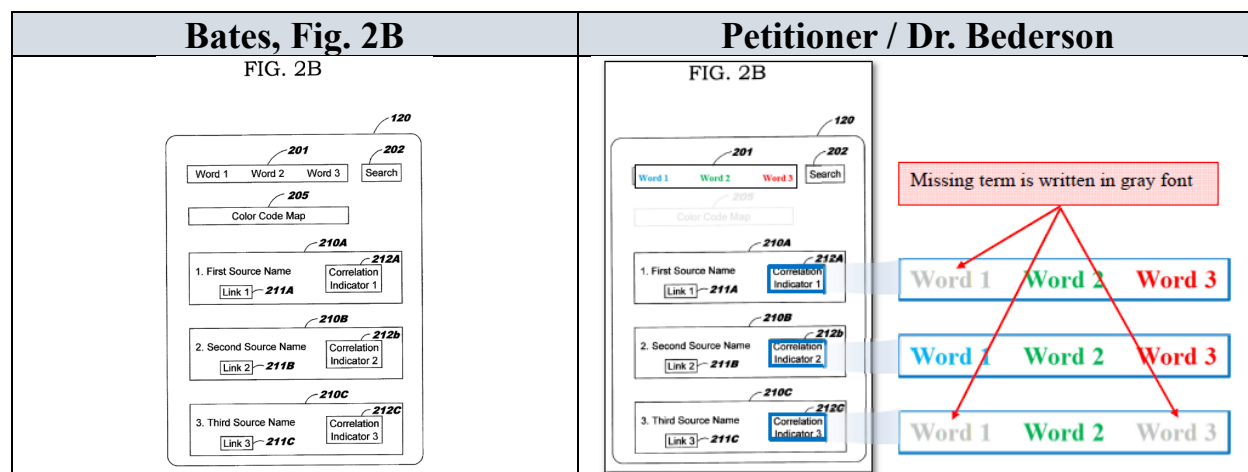
Bates’s correlation indicator is a colored bar with segments. Ex. 1010 [Bates] [0033]. Each segment is associated with one of the user’s keywords. *Id.* When a keyword is present in the referenced webpage, its segment is colored. *Id.* When a keyword is absent, the segment is “left uncolored, or colored according to a background color not associated with any keyword by the color code map.” *Id.* In

an alternative embodiment, Bates expressly contemplates that the indicator may simply omit the missing keyword's segment entirely: "When a particular keyword does not appear in the web page identified by the URL, it is not necessary that the correlation indicator 212 have an uncolored Segment in recognition of the absence of that keyword." Ex. 1010 [Bates], [0034]. Both embodiments show only the *absence* of color or the absence of a colored segment of the horizontal bar—not the missing keyword's text (the claimed "search term element").

Keyword text appears in Bates, but never within the correlation indicator that Petitioner alleges is the missing search-term annotation. Bates discloses two places where the keyword text is rendered: (i) the user's "input line 201," where the searcher types the keywords; and (ii) the "color code map 205," which is a separate legend showing the assigned color for each keyword. Ex. 1010 [Bates], [0027]–[0031]; Fig 2B. Neither of these two locations is Bates's correlation indicator [212]. Neither of them is part of an individual "search result grouping" as required by the claims. The "color code map 205" is a single legend displayed once on the search page, not with each search result as required by the claims. The input line 201 is the search box, not a search result. Thus, Bates does not disclose missing search term elements that are part of a search result grouping as required by the claims.

Put differently, claim [1G] requires that the annotation—which, under Petitioner’s mapping, is Bates’s correlation indicator [212]—comprise the missing search-term elements. Bates’ correlation indicator does not comprise missing search term elements, it comprises colors.

Petitioner’s own phrasing confirms Bates lacks this limitation. The Petition characterizes its mapping as “another obvious implementation” of Bates—a phrase that does not describe what Bates itself teaches. *See* Pet., 15-17. Instead, the Petition is arguing that it would have been obvious for a POSITA to modify Bates to supply the missing limitation by replacing Bates’ colors with search-term text (rendered, for example, in a grayed-out font). Pet., 18.



Petitioner’s annotated demonstrative (right) modifies Bates Figure 2B (left); it is not Bates’s disclosed correlation indicator. See Pet., 18.

That modification is not disclosed in Bates. Bates discloses a colored-bar correlation indicator. Bates discloses keyword text elsewhere—on the input line

and within the color code map (Ex. 1010 [Bates], [0027]–[0033]) but Bates does *not* disclose using the keyword text itself (i.e., the missing search term element) as the correlation indicator within any individual search result grouping.

Moreover, the “‘implicit’ color coding” passage on which Petitioner relies (Ex. 1010 [Bates], [0031]) describes *the input line’s keywords* being colored according to the code—*not* the inclusion of a missing-term-text indicator placed inside an individual search result grouping. Petitioner’s modification is supplied through Dr. Bederson, who cites generic user interface design rationales rather than pointing to any teaching in Bates to supply the missing limitation. *See* Bederson Decl. ¶¶ 89-99.

Dr. Bederson’s proposed modification results from reading the claims in hindsight. Petitioner identifies, at most, generic user interface design considerations. *See* Bederson Decl. ¶¶ 89-99. It does not identify; non-hindsight reason grounded in the asserted references to supply the missing annotation from Bates’s color-coded bar and Bhagat’s query-edit header. *See infra*, Subpart C (explaining why those generic rationales operate at the wrong level of generality and do not justify this specific redesign). That is, Petitioner supplies the missing search term element through Dr. Bederson rather than through the disclosure of Bates or Bhagat. Subpart B explains why that supply independently fails Rule 42.104(b)(4).

b) Bhagat's Strikethrough Appears in an Alternative-Query Header When the Original Search Returns No Results, Not in an Individual Search Result Grouping.

Bhagat discloses a system for generating suggested queries when a user's initial query produces few or no results. Ex. 1011 [Bhagat], 1:58–2:4; Title (“Generating Suggested Search Queries”). When the original query yields no results, Bhagat's system identifies historical queries that match a subset of the user's terms—that is, queries generated by removing one or more of the user's terms. Ex. 1011 [Bhagat], 6:4–22; Fig. 2. Bhagat then displays each suggested alternative query as a header labeling the corresponding *group of results*, with the term Bhagat's system removed from the user's original query shown in strikethrough form within that header. *See* Ex. 1011 [Bhagat], Fig. 2.

The strikethrough's function in Bhagat is a query-edit label. Ex. 1011 [Bhagat], 8:29–34 (“In [Fig. 2], the search application removes a search term from the user supplied search query ...”). It does *not* appear within any individual search result grouping. And it does not convey that any particular referenced webpage within the group lacks the removed term. This is crucial. Bhagat's strikethrough means that Bhagat did not search for the struck through result, not that the struck through result is not present in any of the results. Indeed, in many scenarios, terms that are struck through in Bhagat could still be present in some of the returned results, as further explained below. That is, Bhagat's groups are

generated by Bhagat's system having dropped the term(s) from the query, not by an examination of the individual referenced webpages.

The distinction matters for limitation [1G]. Claim 1 requires an annotation comprising one or more search-term elements missing *in the referenced webpage*. Ex. 1001, cl. 1[pre]. Bhagat's strikethrough does not say anything about whether the term is missing from any referenced webpage. It indicates only that Bhagat removed the term from the query (*i.e.*, that the term was ignored, rather than assessed with respect to individual references). In other words, Bhagat's (like Mills') strikethrough is for query editing, not what is contained in the referenced webpage. Petitioner's incorrect characterization that Bhagat's strikethrough indicates the search result "are missing the stricken term, but include the other search term(s)." is supplied by Dr. Bederson (Bederson Decl. ¶¶ 81-83, 85), not by Bhagat.

c) The Bates-Bhagat Combination Does Not Supply the Missing Limitation.

The Bates-Bhagat combination does not cure Bates's defect because neither reference teaches the claimed "an annotation showing the at least one search term element missing in the second webpage ... and wherein the annotation is comprised of a text representing the at least one search term element." The references merely disclose Bates's per-result colored-bar correlation indicator and

Bhagat's strikethrough text in an alternative-query header. Petitioner's combination adds annotated search terms into Bates's indicator location and assigns the search terms the meaning that the referenced webpage lacks the term. But neither Bates nor Bhagat uses struck through search terms to indicate that a specific result lacks the struck through term, and Petitioner identifies no non-hindsight reason to create that interface apart from the challenged claim. *See e.g.*, Pet., 14 (stating that to “implement[] Bates's system using either” Bates's own font-color technique or Bhagat's strikethrough format would have been obvious).

Bates [0036]'s reference to alternative “visual presentation[s]” of the correlation indicator does not disclose the missing limitation. Ex. 1010 [Bates] [0036]. By its express terms, [0036] is *limited* to presentations that “use[] a color code.” *Id.* (“The correlation indicator 212 may be any visual presentation that uses a color code....”). Subpart C addresses why a POSITA would not have understood that clause to authorize substituting Bhagat's non-color-code text format, and Subpart B explains why supplying the additional step through Dr. Bederson's testimony does not satisfy Rule 42.104(b)(4). Thus, Bates does not teach or suggest using a missing search term element as an annotation that the search term element is missing from “the referenced webpage.”

Petitioner's “Bates-alone” theory fares no better. That theory rests on Bates's “implicit” color-code embodiment, in which each keyword is rendered in colored

font on the input line. Ex. 1010 [Bates], [0031]. But Bates renders that keyword text only in two places: (i) the “input line 201” and (ii) the “color code map 205.” Ex. 1010 [Bates], [0026]–[0031]. Neither is the per-result correlation indicator and neither is part of any individual search result grouping. Bates never renders the keyword text itself as the relevance indicator within an individual search result, much less in a grayed-out font signifying that the term is missing from the referenced webpage. Supplying that gray-font, missing-term-text indicator therefore requires the same unsupported modification as the Bates-Bhagat theory, and Bates’s express limitation of its indicator to presentations that “use[] a color code” (*id.*, [0036]) forecloses it.

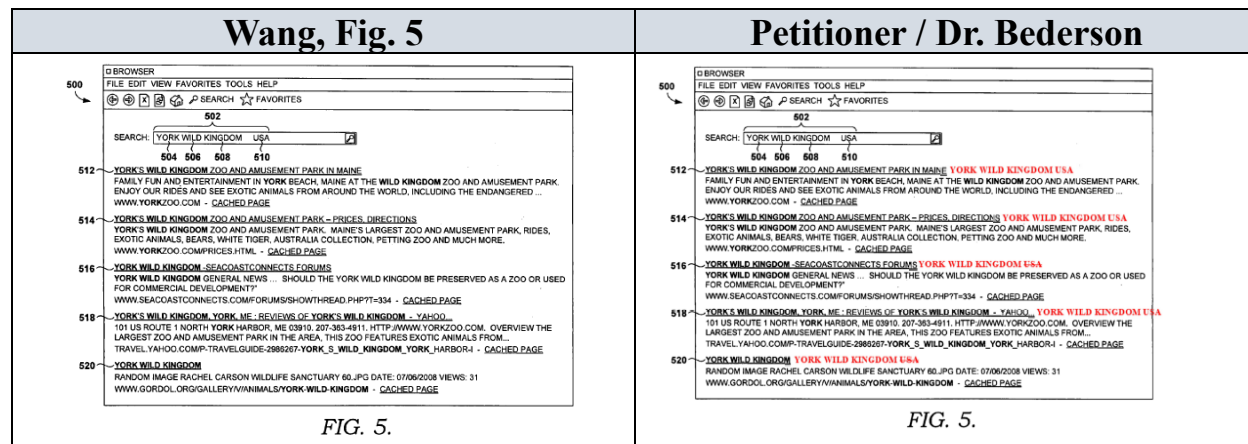
Grounds 1A–1D therefore fail on the merits. The Bates-Bhagat combination does not disclose or render obvious limitation [1G]/[7G]/[12H]/[17I]/[19D-E].

2. Wang and Wang-Mills (Grounds 2A-2D).

Petitioner alleges that Wang in combination with Mills discloses or renders obvious [1G]. Pet., 75-80. Petitioner identifies Mills’ “altered search string [163]”—displayed as a header above each result *group*, as the individual search result “annotation” required by claim 1[F] and [1G]. Pet., 73-75; Bederson Decl. ¶¶ 291–309. That mapping fails because the altered search string is a group-header query label, not an individual per-result annotation comprising a missing term in

the referenced webpage. Wang adds nothing that could supply what Mills lacks.

Compare Pet., 79 with Ex. 1005 [Wang], Fig. 5:



Petitioner's annotated demonstrative (right) modifies the Wang-Mills display; it is not a display disclosed by Wang or Mills.

a) Wang Discloses No Annotation at All; Mills' Altered Search String is a Group Header, Not an Annotation Within a Search Result Grouping.

Wang's contribution to the proposed combination is a backend keyword-relaxation technique. By "relaxed," Wang is referring to searching that "does not require a document [e.g. search result] to contain all keywords in the search-engine query to be returned within a results list." Ex. 1005 [Wang], [0031]. When a multi-keyword query yields no results, Wang searches for documents containing a "subset" of the keywords, with selected keywords designated as "non-relaxed." See Ex. 1005 [Wang], Abstract; [0004]-[0005], [0014]-[0016]. Wang teaches that "[o]nly documents containing the subset of keywords is identified for the results list." *Id.* [0014]. Further, Wang is backend because it is directed to how the search

is performed, not how the results are displayed. Wang's results display contains no annotation and no indication of which keyword is missing from any referenced webpage. Wang teaches no signal of relevance, no rendering of the missing keywords, and no marking of any kind on individual search results. Thus, Wang does not disclose limitation [1G].

Wang's relaxation logic compounds the problem. Only Wang's system knows which keywords were relaxed in the query. But limitation [1G] is not directed to a system for relaxing keywords in a search query. It is directed to displaying terms "missing in the referenced webpage" to a user. A keyword relaxed in the search query is not, by virtue of being relaxed, necessarily missing from webpages returned by the search query. A relaxed query may return documents that contain the relaxed term (because relaxation is permissive, not exclusive), and the relaxation operation itself does not indicate whether a particular result contains the relaxed term. Knowing which terms the system dropped from a search query is *not* the same as determining which terms are missing from an individual referenced webpage.

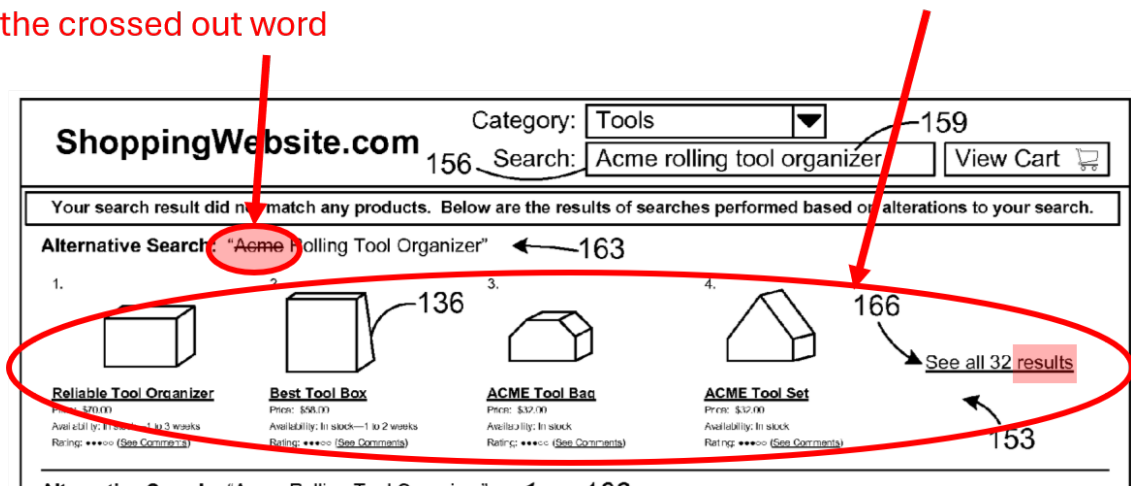
Mills' contribution to the asserted combination is the user-facing display of altered search strings. Mills' specification describes the system as follows. "[T]he search engine 129 generates a plurality of altered versions of the search string 159 that are displayed as altered search strings 163 in the network page 149. That is to

say that each altered search string 163 comprises an altered version of the search string 159 originally entered by a user.” Ex. 1006 [Mills], 6:38–46. However, each altered search string is “graphically associated with *a group 153 of items* identified based upon a second query generated from the altered search string 163 itself.” *Id.*, 6:43–46 (emphasis added). The altered search strings are *not part of any individual search result* as required by limitation [1G]; they are headers above *groups of separately presented results*. Mills makes this layout explicit: The network page “shows two or more separate groups of items 136 that result from corresponding ones of the second queries,” and each altered search string is “associated with” a “group of items [136],” not contained within an individual result as claimed in the ’184 Patent. *Id.*, 4:62–67, 6:43–46.

The excerpted and annotated image of Mills Figure 2 below demonstrates these differences:

The crossed out word in Mills indicates that it was not used in the search; not that the results group does not include the crossed out word

The crossed out word in Mills is associated with a group of search results, not a specific webpage



Ex. 1006 [Mills], Fig. 2 (excerpted and annotated).

Claim [1G] requires that the annotation be part of the individual “search result grouping”—which claim [1G] defines as the unit containing an annotation and at least one of a title, link, excerpt, or URL. The “search result grouping” in the claims is associated with an individual webpage, not a group of pages. Ex. 1001 [’184 Patent], limitation [1G]. Mills’ altered search string is *not* part of any individual result presentation; it is a header above all results in the group.

Petitioner’s mapping treats Mills’ group header as the [1G] annotation of each individual search result, but Mills’ specification places the altered search string outside of any individual result, “graphically associated” with the group [153] as a whole. Ex. 1006 [Mills], 6:43–46.

Mills' own Figure 2 confirms that a struck-through term in the altered-search-string header is not a per-result annotation that the term is missing from the referenced webpage. In the first altered-search group, the header "Acme Rolling Tool Organizer" shows "Acme" struck through, yet the results listed within that very group include "ACME Tool Bag" and "ACME Tool Set." Ex. 1006 [Mills], Fig. 2. The struck term "Acme" thus appears in the titles of results displayed under the header from which it was struck. That is face-of-the-reference proof that the strikethrough signals only that Mills' system removed the term from the user's query to generate the altered search, not that the term is absent from any individual referenced webpage. The altered-search-string strikethrough is a query-edit, group-level label, not the claimed per-result annotation comprising a search term missing in the referenced webpage. Thus, Mills does not teach or suggest limitation [1G].

b) Mills' Strikethrough is Outside the Search Result Grouping.

Limitation [1G] requires the search result grouping to be "comprised of an annotation showing the at least one search term element missing in the second webpage and one or more of: a title for the second webpage, an Internet link for the second webpage, an excerpt of the second webpage, or a URL for the second webpage, and wherein the annotation is comprised of a text representing the at least one search term element." Ex. 1001, cl. 1[G]. But Mills' altered search string

[163] is not within any individual search result grouping. It is a UI element sitting above the group of results as a whole. *See* Ex. 1006 [Mills], Fig. 2. Even if a POSITA understood the strikethrough on the altered string to convey that Mills' system removed the stricken term from the user's original query, that understanding does not make the altered-string header part of any individual search result grouping, and it does not characterize the term as missing in the individual referenced webpage. Wang adds nothing on this point because Wang teaches no display element at all.

c) The Wang-Mills Combination Does Not Cure the Underlying Defects.

Even if a POSITA combined Wang's backend search query relaxation with Mills' display of results for altered search queries, the resulting system would not include an annotation, within each individual search result grouping, that "second webpage [that] is missing the at least one search term element, and by not opening the second webpage a faster execution is enabled for the Internet search process." Ex. 1001 ['184 Patent], limitation [1H]. The resulting system would consist instead of (i) Wang's backend search results based on a relaxed keyword subset and (ii) Mills' user interface displaying altered search strings as headers above corresponding result groups. The altered search string would still be a query-level group header. The individual results within each group would still not contain any

per-result annotation comprising the missing term, nor would those results necessarily be missing the search terms that Mills displays as crossed out.

The references as disclosed provide, at most, Wang’s backend relaxation and Mills’ altered-search query group-level headers. Although Petitioner argues that the resulting group header is an annotation of each individual result within the group, that is *not* taught or suggested by Wang or Mills. For example, the Petition asserts that “Wang-Mills’s annotation . . . comprises one or more search term elements that are missing in the referenced webpage, *e.g.*, ‘USA’ is missing from the second and third referenced webpages.” Pet., 77 (citing Bederson Decl. ¶ 298). But nothing in Wang or Mills places “USA” (or any other missing term) within an individual result’s search-result grouping as an annotation comprising the missing term, and Mills’ specification places the altered string “graphically associated with a group 153 of items”—not within any individual item. Ex. 1006 [Mills], 6:43–46.

Grounds 2A–2D therefore fail on the merits. The Wang-Mills combination does not disclose or render obvious limitation [1G].

B. The Petition’s Reliance on Dr. Bederson’s Testimony to Supply Limitation [1G] Independently Fails Under 37 C.F.R. § 42.104(b)(4).

A petition for *inter partes* review “must specify where each element of the claim is found in the prior art patents or printed publications relied upon.” 37

C.F.R. § 42.104(b)(4). On July 31, 2025, the USPTO issued a memorandum reaffirming enforcement of that requirement.¹ The Director Memo states that:

[A] petition for *inter partes* review (IPR) “must specify where each element of the claim is found in the prior art patents or printed publications relied upon.” . . . [E]xpert testimony . . . and other evidence that is not “prior art consisting of patents or printed publications” (collectively, “general knowledge”) may not be used to supply a missing claim limitation. . . . Per 35 U.S.C. § 312(a)(4), the Board shall deny an IPR petition that fails to comply with Rule 104(b)(4).

Director Memo, 1-2. Thus, “general knowledge” in the form of expert testimony may not supply claim limitations that are missing from the prior art.

As Subpart A demonstrates, neither the Bates-Bhagat combination nor the Wang-Mills combination discloses limitation [1G]: no cited passage of Bates, Bhagat, Wang, or Mills shows an annotation, within an individual search result, “an annotation showing the at least one search term element missing in the second webpage . . . , and wherein the annotation is comprised of a text representing the at least one search term element.” The Petition instead attempts to supply that element through the testimony of its expert, Dr. Bederson. For the Bates-Bhagat grounds, the Petition rests its [1G] mapping on Dr. Bederson’s opinion that a correlation indicator “the annotation for the second webpage enables the user to readily discern . . . that the second webpage is missing the at least one search term

¹ The Director Memo applies by its terms to petitions filed on or after September 1, 2025. The Petition here was filed after that date.

element because the missing term is written in an unassigned color, e.g., gray-font (Bates-alone) and/or with a strikethrough format (Bates-Bhagat).” Pet., 36 (citing Bederson Decl. ¶ 147); *see also id.*, 32-33 (citing Bederson Decl. ¶¶ 137-141); *id.*, ¶ 161. For the Wang-Mills grounds, the Petition rests its [1G] mapping on Dr. Bederson’s opinion that “Wang-Mills enables *readily discern[ing] such search result without opening its referenced webpage.*” Pet., 82 (citing Bederson Decl. ¶ 316). In each instance, the cited expert declaration paragraphs do *not* identify a disclosure in the references; they supply the missing limitation themselves.

That is precisely what Rule 42.104(b)(4) forbids. Because the Petition identifies no passage of the asserted references that discloses the [1G] annotation, and instead relies on Dr. Bederson’s general knowledge to supply it, the Petition fails to “specify where each element of the claim is found in the prior art,” and the Board “shall deny” institution under 35 U.S.C. § 312(a)(4). 37 C.F.R. § 42.104(b)(4); Director Memo, 1–2. This threshold defect is independent of the merits and supports denial before the Board reaches the Petition’s merits showing under § 314(a).

C. The Asserted Combinations Also Fail Because Petitioner Has Not Shown That a Person of Ordinary Skill Would Have Combined the References with a Reasonable Expectation of Success.

Even setting aside the limitation-mapping failures developed above, the Petition fails on motivation-to-combine and reasonable-expectation-of-success grounds. Petitioner has not articulated a record-supported reason a POSITA would have combined the references in the manner proposed, nor identified the evidence required to support that reason. “A determination of obviousness cannot be reached where the record lacks ‘explanation as to how or why the references would be combined to produce the claimed invention.’” *Hyundai Motor Co. v. Blitzsafe Texas, LLC*, IPR2016-01476, Paper 12, 33 (PTAB Jan. 24, 2017) (citing *Trivascular, Inc. v. Samuels*, 812 F.3d 1056, 1066 (Fed. Cir. 2016)).

1. The Asserted References Address Different User-Interface Problems and Provide No Suggestion to Annotate Individual Results with Missing Terms.

Each of Bhagat, Wang, and Mills addresses a different user-interface problem and provides no reason a POSITA would have arrived at the claimed per-result missing-term annotation.

For example, Bhagat addresses how to suggest alternative queries when a user’s initial query yields few or no results. Ex. 1011 [Bhagat], 1:58–2:4; *id.*, Title. Bhagat’s strikethrough is a UI element showing that Bhagat created a new search

term. *Id.*, 8:16–34. Wang addresses a backend search problem of how to identify documents that match a subset of the user’s keywords when no documents match all of them. Ex. 1005 [Wang], Abstract; [0004]–[0005], [0014]–[0015]. Wang’s invention sits at the inverted-index layer; it teaches no user-interface technique, no annotation, and no per-page signal of keyword absence. Mills addresses a third problem of how to present alternative queries and corresponding groups of items to a user whose original search string yielded no results. Ex. 1006 [Mills], 1:6–10; 6:38–46. Mills’ altered-search-string display is a group-header label identifying which alternative query produced the corresponding result group. *Id.* Bates is the only reference directed to per-result annotation. And yet, as developed in Subpart A, Bates teaches a colored-bar correlation indicator that does *not* comprise missing search-term text. A POSITA modifying Bates to produce the [1G] annotation would have to redesign the indicator in a manner Bates does not teach. *See Shopkick Inc. v. Novitaz, Inc.*, IPR2015-00279, Paper 7, 29–30 (PTAB May 29, 2015).

2. Petitioner’s Combinations Are Not Supported by a Sufficient Reason to Modify the References as Required.

Bates expressly characterizes its correlation indicator as a “visual presentation that uses a color code to convey the presence or absence . . . of keywords in a web page.” Ex. 1010 [Bates], [0036]. That color-code framing undercuts Petitioner’s rationale for substituting Bhagat’s non-color-code

strikethrough text format for Bates's indicator. The Petition needed to explain why a POSITA reading Bates would have abandoned or materially altered Bates's color-coded mechanism to create a textual missing-term annotation within the search result grouping. The Petition does not.

Rather, the Petition asserts that a POSITA "would have used the text of the search terms as correlation indicators, with missing terms formatted with a strikethrough as Bhagat teaches." Pet., 18; Bederson Decl. ¶101. That rationale operates at the wrong level of generality. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398 (2007), permits combining references that perform their actual disclosed functions in a predictable way. It does not authorize importing Bhagat's strikethrough out of its actual disclosed context (the suggested-query header presented after a zero-results search) into a different context (a per-result indicator placed in each individual search result grouping) where Bhagat does not place it. The two interfaces are doing different things on different display elements. Petitioner's same-general-goal framing erases that distinction without supplying any teaching or rationale in the asserted references that a POSITA would have made the relocation.

The Wang-Mills combination fares no better. The Petition's stated rationale for combining Wang and Mills is that a POSITA implementing Wang's backend keyword-relaxation technique would have looked to Mills' altered-string display to

surface the relaxed-keyword information to the user. Pet., 78; Bederson Decl. ¶¶ 299-301. That circular rationale assumes the prior art reference that was trying to disclose which keywords were relaxed in the query, when the claim requires communicating which terms are missing in the referenced webpage. As Subpart A develops, those are not the same data. A relaxed query may return documents that contain the relaxed term. The relaxation operation says nothing about whether a particular result contains the relaxed term. Petitioner's rationale conflates the two and supplies no explanation grounded in Wang's or Mills' actual disclosures that a POSITA would have understood Mills' altered-string display to characterize per-result keyword content.

The Wang-Mills combination depends on three independent transformations:

- (i) importing Mills' altered-search-string display into Wang's relaxation backend;
- (ii) treating Mills' altered-string display in a strikethrough form that, on Mills Figure 2's depiction, sits in a group header rather than in a per-result grouping; and
- (iii) relocating or recharacterizing that altered-string display as a per-result annotation indicating that each individual referenced webpage lacks the stricken term. The Petition does not identify a prior-art or record-supported rationale that would have prompted any of these transformations.

3. Petitioner's Reasonable-Expectation-of-Success Showing Is Conclusory.

Even where the Petition uses the language of reasonable expectation of success, it does so without record-grounded analysis tied to the specific claimed outcome. *PersonalWeb Techs., LLC v. Apple, Inc.*, 848 F.3d 987, 994 (Fed. Cir. 2017). Petitioner's reasonable-expectation-of-success showing, at most, addresses the mechanical feasibility of changing a search-results interface. It does not explain why a POSITA, modifying Bates or combining Wang with Mills, would have expected the modification to produce the specific claimed annotation in an individual search result grouping that comprises a search-term element missing in the referenced webpage. Mechanical feasibility is not the same as a reasonable expectation of success for the claimed result. In other words, the Petition's reasonable expectation of success showing addresses only whether a programmer could alter a display, not whether the result would have the claimed result, *i.e.*, a per-result annotation comprising a term determined missing from the referenced webpage. The proposed modification succeeds at the wrong task.

4. Petitioner's Combination Reading the Claims in Hindsight.

Petitioner's combination theories use the challenged claim as a roadmap rather than identifying a contemporaneous reason a POSITA would have made the combination. *See InTouch Techs., Inc. v. VGO Comm 'ns, Inc.*, 751 F.3d 1327 (Fed.

Cir. 2014). The asserted reason to combine Bates with Bhagat is that doing so would produce “an annotation comprising missing search terms with text in strikethrough”—the very [1I] feature. The asserted reason to combine Wang with Mills is that doing so would produce an annotation in each result grouping comprising the missing term. In each case, the reason offered is that the combination would yield the claimed feature. This is hindsight reconstruction.

D. Grounds 1B–1D and 2B–2D Add Secondary References for Dependent-Claim Features and Fail to Cure the Independent-Claim Failure.

Grounds 1B, 1D, 2B and 2D challenge only dependent claims. Grounds 1C and 2C challenge independent claim 19 along with dependent claims 5, 10, 15, 17, 18 and 20. Each ground adds Naick (Grounds 1B, 2B), Brinson (Grounds 1C, 2C), or Mehta (Grounds 1D, 2D) to the corresponding independent-claim ground. Pet., 44–59, 85–92. Petitioner adds each secondary reference for a discrete dependent-claim feature, but does not contend that Naick, Brinson, or Mehta cures the [1F] failure. Indeed, Petitioner never relies on Naick, Brinson, or Mehta as disclosing the per-result missing-term annotation required by [1F] apply equally to [7I], [12H], [17I] and [19D]. *See* Pet., 4, 44–59 6-67, 85-92, 104-105. Grounds 1B–1D and 2B–2D therefore fail for the same reasons Grounds 1A and 2A fail. *See In re Fine*, 837 F.2d at 1076.

VI. OBJECTIVE INDICIA CONFIRM THE CHALLENGED CLAIMS OF THE '184 PATENT ARE NOT OBVIOUS

The '184 Patent demonstrates objective indicia of non-obviousness, including long-felt need and commercial success. Before the first application in the '184 Patent family was filed on June 17, 2011, when a user ran a query on search engines like Google, the search engine often returned vast numbers of search results, many of which were irrelevant or lacked one or more of the search terms requested by the user. This often left users confused as to which search results were actually relevant and forced the user to waste considerable time reviewing search results that do not contain required search terms. Thus, there was a long-felt need for users to be able to quickly and efficiently determine which search results were actually relevant.

To address this long-felt need, inventor Robert Osann Jr. invented a system where each search result would include annotations indicating which search terms are missing. This innovation resulted in the applications that issued as the '184 Patent and its relatives. The claims of the '184 Patent are directed to providing these search result annotations.

The claimed search result annotations have proved wildly successful. By December 2012, Google was using the same sort of annotations for at least some search results by showing missing terms crossed out. Google has continued using

the claimed invention through the present. Competitors such as Microsoft Bing also use similar search result annotations in their search results. Accordingly, the claimed search result annotations have demonstrated tremendous commercial success through their continuous use in leading search engines like Google and Bing.

The objective indicia identified herein are based largely on publicly-available information. As discussed in Patent Owner's discretionary denial brief, Patent Owner expects discovery will identify further information regarding objective indicia, including the long felt need for, and commercial success of, the claimed invention. For example, discovery will be required into the proprietary bases for decisions by Microsoft, Google, and possibly others to copy the claimed inventions. That will include more specific financial analyses and assessments of user impact—none of which are publicly available.

Because the claimed invention demonstrates objective indicia of solving long-felt need and commercial success, the claims are not obvious. Accordingly, the Petition cannot demonstrate a reasonable likelihood that any challenged claim is obvious. Because every ground in the Petition is based on obviousness, the Petition must be denied.

1. Legal Standard

“The objective indicia analysis is . . . a fundamental part of the overall § 103 inquiry.” *Liqwd, Inc. v. L’Oreal USA, Inc.*, 941 F.3d 1133, 1137 (Fed. Cir. 2019) (citation omitted). It is an essential safeguard that protects against hindsight bias. *Eurand, Inc. v. Mylan Pharms., Inc. (In re Cyclobenzaprine Hydrochloride Extended-Release Capsule Patent Litig.)*, 676 F.3d 1063, 1079 (Fed. Cir. 2012). In fact, objective indicia “‘may often be the most probative and cogent evidence’ of nonobviousness.” *Advanced Display Sys. v. Kent State Univ.*, 212 F.3d 1272, 1285 (Fed. Cir. 2000) (citation omitted).

Evidence showing objective indicia of nonobviousness constitutes “independent evidence of nonobviousness” and “must always be considered en route to a determination of obviousness.” *Intri-Plex Techs., Inc. v. Saint-Gobain Performance Plastics Rencol Ltd.*, IPR2014–00309, Paper 83, 35 (PTAB Mar. 23, 2014) (citation omitted). “Such evidence can establish that ‘an invention appearing to have been obvious in light of the prior art was not.’” *Id.* (citation omitted). Consequently, a trial court should not “defer examination of the objective considerations until after the fact finder makes an obviousness finding.” *In re Cyclobenzaprine*, 676 F.3d at 1075–76 (citation omitted). Instead, “fact finders must withhold judgment on an obviousness challenge until it considers all relevant evidence, including that relating to the objective considerations.” *Id.*, 1079.

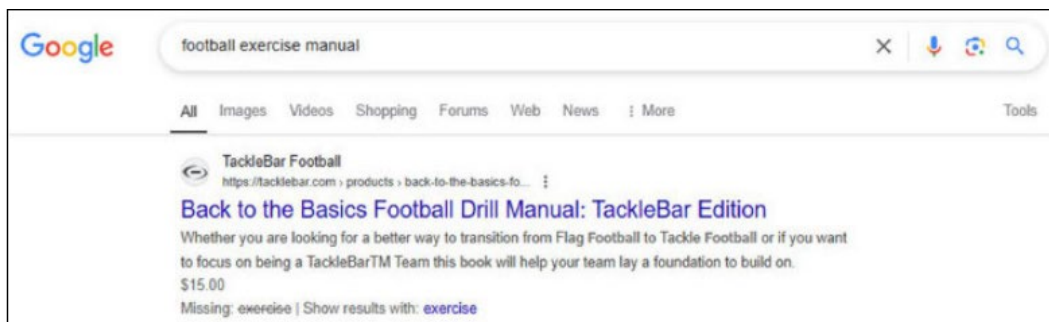
To be accorded substantial weight, objective indicia evidence must have a “nexus” or “legally and factually sufficient connection” to the commercial product. *See, e.g., Demaco Corp. v. F. Von Langsdorff Licensing Ltd.*, 851 F.2d 1387, 1392 (Fed. Cir. 1988). A presumption of nexus is established “when the patentee shows that the asserted objective evidence is tied to a specific product and that product ‘embodies the claimed features, and is coextensive with them.’” *Lectrosonics, Inc. v. Zaxcom, Inc.*, IPR2018-01129, Paper 33, 32 (PTAB Jan. 24, 2020) (precedential) (citing *Fox Factory, Inc. v. SRAM, LLC*, 944 F.3d 1366, 1373 (Fed. Cir. 2019)). “However, even absent a presumption of nexus, the patent owner is still afforded an opportunity to prove nexus by showing that the evidence of secondary considerations is the direct result of the unique characteristics of the claimed invention.” *Volvo Penta of the Ams., LLC v. Brunswick Corp.*, 81 F.4th 1202, 1210 (Fed. Cir. 2023) (internal quotations omitted).

Objective indicia can include, for example, commercial success, industry praise, long felt but unsolved needs, failure of others and unexpected results. *See, e.g., Graham v. John Deere Co.*, 383 U.S. 1, 17 (1965). At least long felt need and commercial success are present here for the claimed invention and demonstrate that the challenged claims are not obvious.

2. A Nexus Exists Between the Objective Indicia and Google's Search Engine

The objective evidence discussed below is tied to Google's (and Microsoft's) search engine's adoption and continued use of the missing-term annotation feature that embodies the core limitation of the challenged claims.

Google's search engine uses the claimed annotations because it annotates search results to show which terms are missing by including the term "Missing:" followed by the missing term crossed out:



The screenshot above shows Google Search results for the query "football exercise manual," annotating the result "Missing: ~~exercise~~ / Show results with: exercise." The claims are directed to annotating search results to show missing search terms, and Google's search engine performs precisely that annotation. That feature-level correspondence establishes the requisite nexus between the objective evidence and the specific claimed feature, independent of any presumption. The claim chart at Ex. 2026 demonstrates that Google's search engine embodies the claimed invention of the '184 Patent.

A nexus exists because Patent Owner's evidence of secondary considerations is a "direct result of the unique characteristics of the claimed invention." *Volvo Penta*, 81 F.4th at 1210. As discussed below, the claimed features were implemented in Google's search engine in 2012 or 2013 and have consistently been present since. Google would not keep functionality present if it did not contribute to the success of Google's industry-leading search engine.

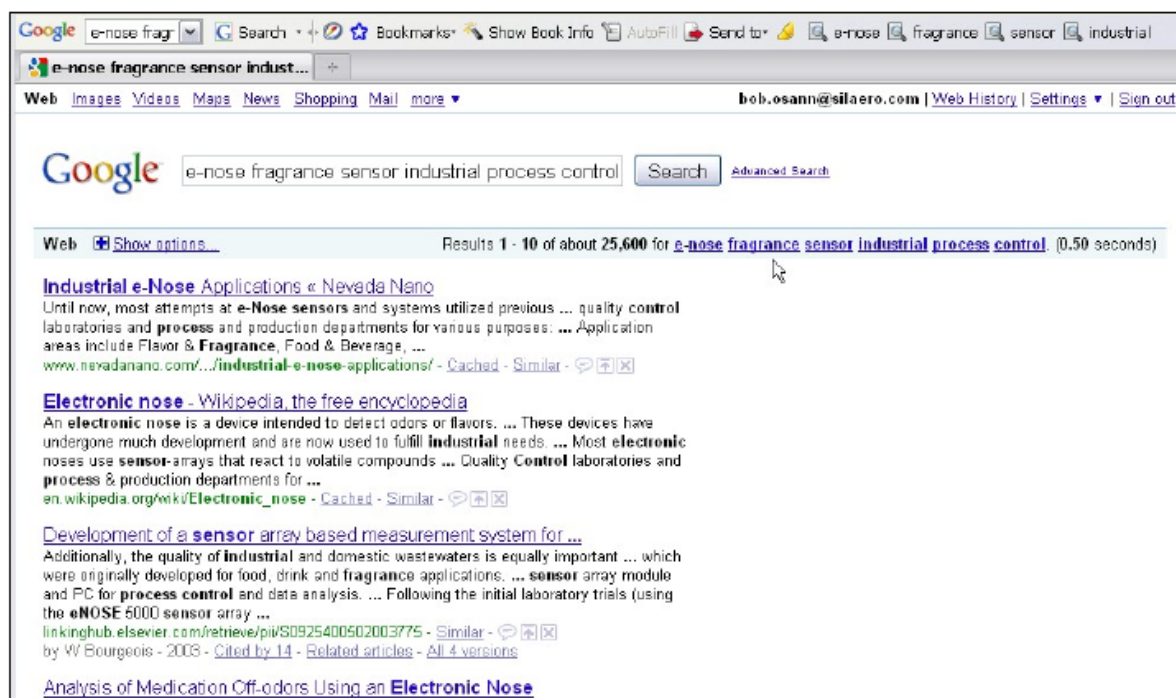
Google's public filings reflect the commercial importance of the claimed invention. "Advertising is [Google's] principal source of revenue." Ex. 2017 [Google S-1], 33. Google's S-1 identifies "the relevance, objectivity and quality of [its] search results," as well as "the number of searches initiated" at Google websites, as factors that influence the success of its advertising programs. Ex. 2017 [Google S-1], 57. The claimed search engine annotation functionality makes search results more relevant and higher quality by reducing the time users have to spend looking for relevant results. Google itself recognizes the commercial importance of search-result quality, and the claimed annotation is directed to improving a user's ability to evaluate search-result relevance by identifying missing query terms.

To this day, advertising from Google's Internet search page continues to be the central source of revenue for Google. Ex. 2018 [How our business works], 1 ("Advertising is what makes it possible to offer our products to everyone. ... we

make the vast majority of our money from advertising.”). Thus, a nexus exists between Google’s search engine and the claimed features of the ’184 Patent.

3. There Was a Long-Felt Need for the Claimed Internet Search Result Annotations.

Before the June 11, 2011 priority date, the primary method of conducting searches across the Internet was through the use of Internet search webpages, including Google, Bing, Yahoo and DuckDuckGo. Ex. 2016 [Osann Decl.], ¶11. An example Google search run on September 16, 2009 is shown below:

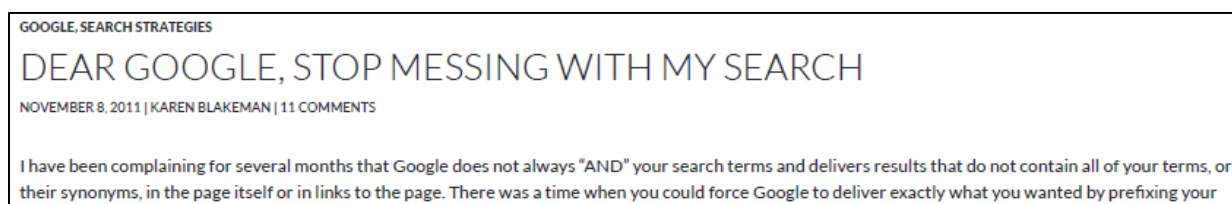


Ex. 2016 [Osann Decl.], ¶ 12.

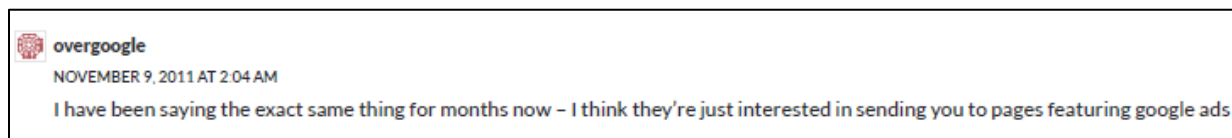
Many of the searches conducted by these search webpages returned resulting linked webpages that lacked one or more of the search terms entered by the user. Ex. 2016 [Osann Decl.], ¶¶ 14-16. These inaccurate results made searching a less

productive, frustrating, and time-consuming task. *Id.* And no Internet search results webpages in or before 2011 indicated whether each returned search result was missing a particular search term the user had entered in a specific query. Ex. 2016 [Osann Decl.], ¶¶ 22.

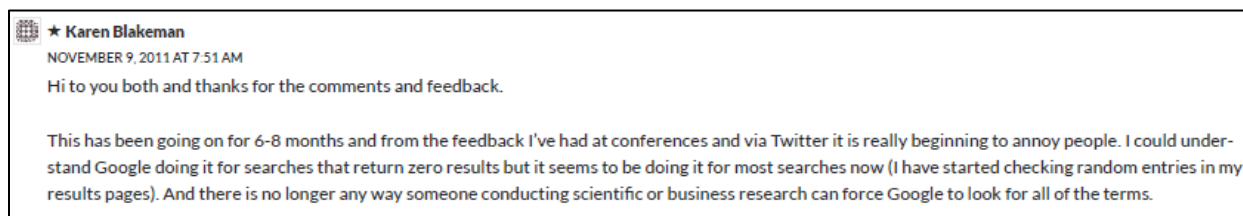
During this timeframe, many Internet users raised this issue, complaining about search results on www.google.com not including key search term elements.:



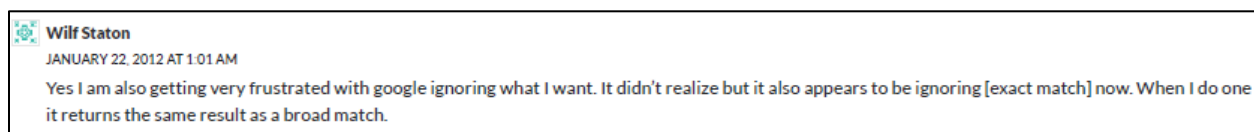
See, e.g., Ex. 2019 [Karen Blakeman Blog], 1.



Id., 3.



Id.



Id., 4.

The challenge when searching online is to find only relevant information or - in other words - avoid irrelevant results on Google search. In this article I will show you 6

Ex. 2020 [www.makeuseof.com], 2.

No kidding. I experience anxiety and confusion every day when searching for information, much more so when I'm using Google. The signal-to-noise ratio is much, much worse, as content chop-shops flood Google with repetitive dross. And while older databases are tightly controlled by genres of publication, Google lumps everything in the world together, requiring searchers to be more instinctually discerning:

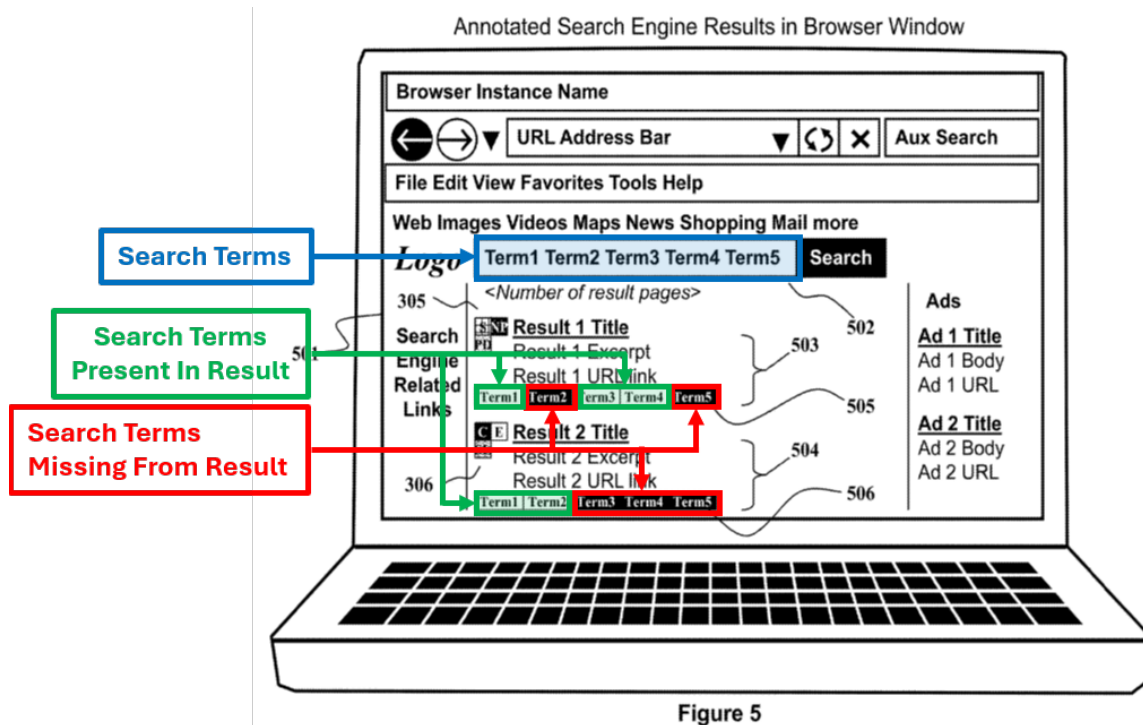
Ex. 2021 [www.chicagomag.com], 6; *see also* Ex. 2016 [Osann Decl.], ¶ 15 (“I frequently found that critical keywords from my searches were missing on some webpages referenced by the returned search results webpage.”); *see generally id.*, ¶¶ 14-16. Thus, there was a long-felt need for Internet search results to convey which results were relevant to the user without the user having to dig through voluminous irrelevant results.

4. The '184 Patent Solved the Long-Felt Need by Annotating Search Results to Show Which Search Terms Are Missing.

The '184 Patent (and its relatives) solved this long-felt need by claiming and disclosing annotations of missing terms in internet search results. Ex. 1001 ['184 Patent], Title, Abstract, cl. 1. *See generally supra* Section II. Inventor Robert Osann, Jr. found he could improve the user-facing portion of Internet search

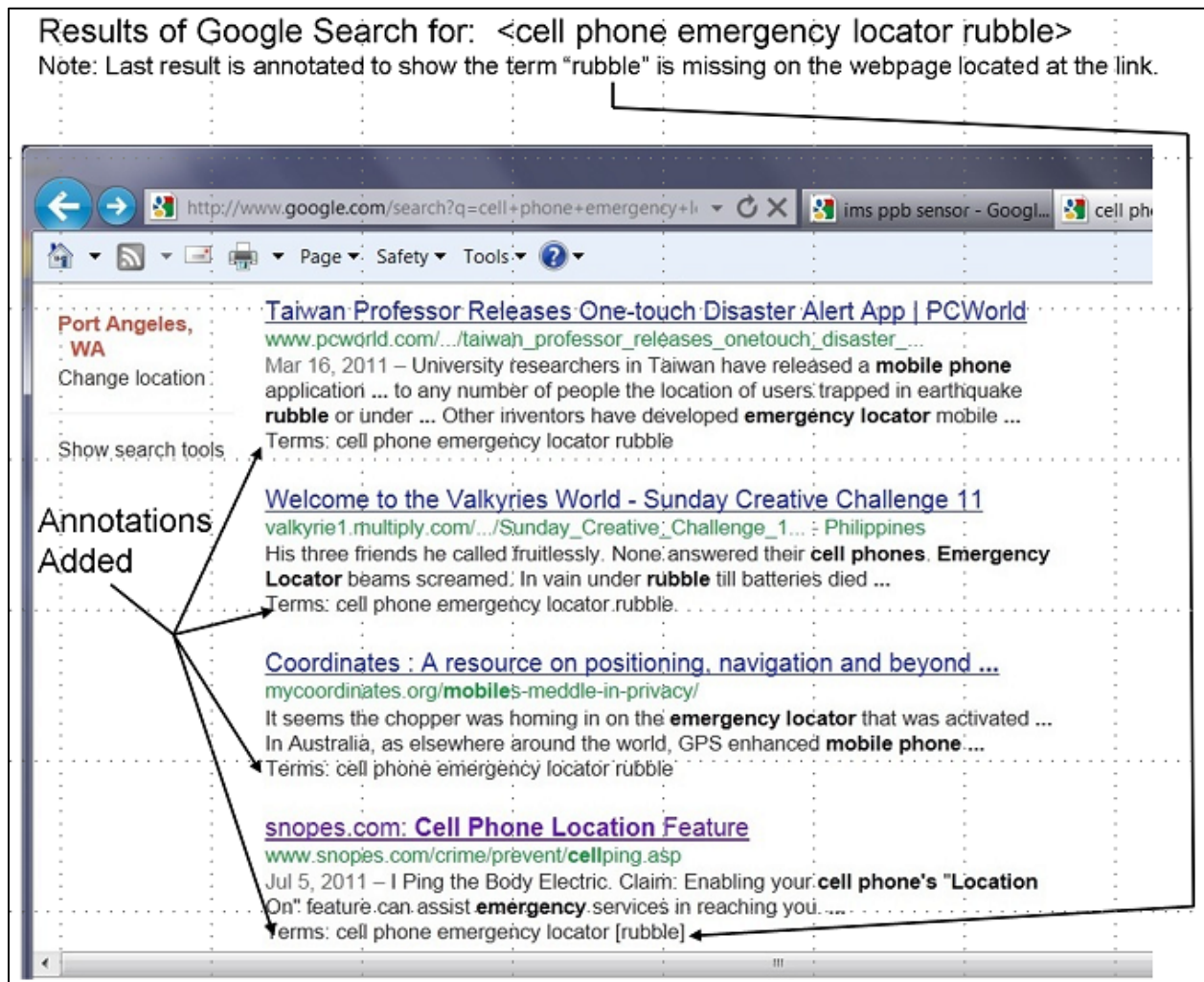
webpages, the graphical user interface (or GUI) by adding limited, specific components to those interfaces. Ex. 2016 [Osann Decl.], ¶ 23. The goal was to provide a means for the user to review all relevant returned content but to do so in a quick and efficient manner. *Id.*, ¶ 28. Thus, Mr. Osann designed an interface that “would allow the user to determine whether each of the returned search results included or excluded one or more of the keywords from the user’s initial search request ... by annotating each of the search results in real time.” Ex. 2016 [Osann Decl.], ¶ 30.

Figure 5 of the ’184 Patent illustrates one embodiment of these annotations. As shown below, after the user enters search terms 1 through 5 in search input bar 502 and clicks search, the search engine returns result groupings 503 and 504. Ex. 1001 [’184 Patent], 10:3-9. Each of result groupings 503 and 504 contains each search term highlighted to indicate whether it is present in the result or not. *Id.*, 10:6-15:



Ex. 1001 ['184 Patent], Fig. 5.

On June 17, 2011, Mr. Osann filed patent application no. 13/163,614 to protect his invention. The '614 Application is the original application in a series of four continuation applications that resulted in the '959 Patent. In or around November 2011, Mr. Osann developed an operating prototype demonstrating the annotating functionality of his invention. Ex. 2016 [Osann Decl.], ¶ 33. A screenshot of an annotated search results screen using Mr. Osann's prototype is shown below:



Id. As shown in the screenshot, each result has annotations that show which terms are present in the result (the words following the "Terms:" annotation) and which terms are missing (terms in brackets []—in this case, [rubble]).

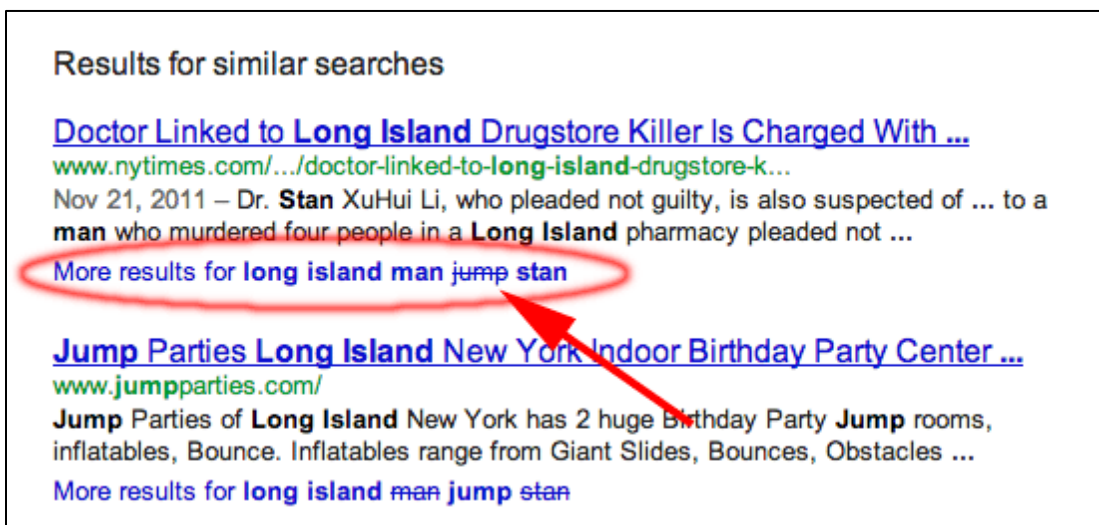
Accordingly, the '184 Patent's annotated search engine results solved the long-felt need to convey which results were relevant to the user without the user having to dig through voluminous irrelevant results.

5. The Claimed Annotation of Internet Search Results Has Been Highly Commercially Successful.

The claimed invention was quickly adopted by leading search engines. Google and others have implemented the claimed invention with tremendous success.

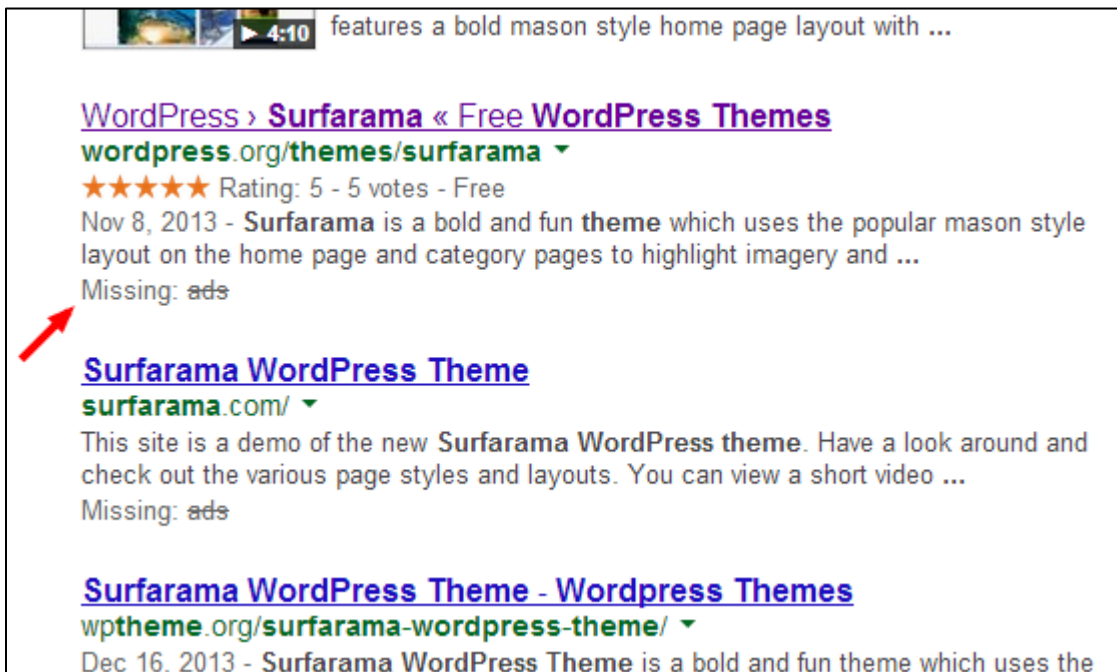
Google's search engine has had tremendous commercial success. Google has been the leading search engine in the world since the first application in the family was filed on June 17, 2011, with roughly a 90% market share since at least 2012. Ex. 2022 [Statcounter], 2. Google's search engine maintains this dominant market share through providing popular features like missing search term annotations in its search results.

Google was one of the first search engines to include missing search term annotations. At least by December 12, 2012, Google had begun returning results for similar searches that displayed search terms missing from a result crossed out:



Ex. 2023 [Search Engine Roundtable], 1. The above image shows search results returned when the user searched for “long island man jump stan,” and the circled result shows that “jump” is shown crossed out because it is missing from the first webpage result. *Id.*

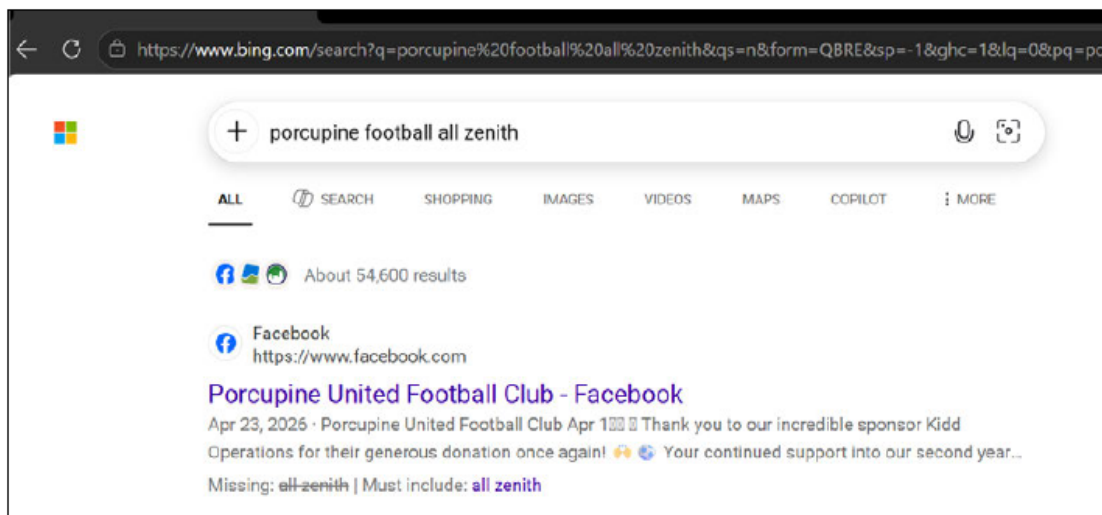
On information and belief, Google withdrew this functionality shortly afterwards, before it reappeared in a slightly different format in or around December 2013. As seen in the screenshot from December 2013, Google search results included the text “Missing:” followed by the missing search term crossed out:



Ex. 2024 [www.aaronrobb.ca], 1 (“This looks like it just popped up today, but in Google’s search results, there is now a line under what looks like the first two or

three results that says ‘missing:’ and shows what search term you had that these sites didn’t show.”).

Other search engines followed suit after Google. One example was Microsoft’s Bing search engine. It deployed a similar function by at least in or around the year 2020:



The widespread popularity and implementation of these features by leading search engines demonstrate the commercial success of the patented technology. Search engine designers are selective about what content and information they disclose on search results pages. And Google has maintained these annotations since at least 2013 because they improve the functionality of Google’s Internet search results page.

That Google has retained the claimed annotation for over a decade is especially probative in light of how Google itself describes the design of its search

interface. Google publicly represents that its “homepage interface is clear and simple,” that it designs each feature to “ultimately serve [the user], rather than [Google’s] own internal goal or bottom line,” and that it improves performance by “shaving excess bits and bytes from [its] pages.” Ex. 2027 [Google, “Ten Things We Know to Be True”], 1-2. A company that so deliberately pares its results page—and whose stated goal is “to have people leave [its] website as quickly as possible,” *id.*—does not devote that scarce interface space to a feature unless it is valuable. Yet the missing-term annotation has appeared on Google’s results pages since 2012, survived Google’s December 2013 redesign, and remains in use today. *See* Exs. 2023 [Search Engine Roundtable], 2024 [www.aaronrobb.ca]. The feature’s persistence through Google’s repeated streamlining is objective evidence that the claimed annotation is important to the market-leading search engine, which reinforces both the nexus and the commercial significance of the claimed invention.

Moreover, the claimed invention contributes to the commercial success of Google’s advertising business. “Advertising is [Google’s] principal source of revenue.” Ex. 2017 [Google S-1], 33. Public filings bear this out. For example, Google’s parent company, Alphabet Inc., reported \$116 billion in advertising revenue for 2018 out of nearly \$137 billion in total revenue, meaning advertising accounted for approximately 85% of 2018 revenues:

	Year Ended December 31,		
	2016	2017	2018
Google segment			
Google properties revenues	\$ 63,785	\$ 77,788	\$ 96,336
Google Network Members' properties revenues	15,598	17,587	19,982
Google advertising revenues	79,383	95,375	116,318
Google other revenues	10,601	15,003	19,906
Google segment revenues	\$ 89,984	\$110,378	\$136,224
Other Bets			
Other Bets revenues	\$ 288	\$ 477	\$ 595
Revenues	\$ 90,272	\$110,855	\$136,819

Ex. 2025 [2018 Alphabet 10k], 29. 2016 and 2017 reported similar revenue splits.

Id. Thus, advertising is by far the largest source of revenue for Google.

“[F]actors that influence the success of [Google’s] advertising programs include [] the relevance, objectivity and quality of our search results” as well as “the number of searches initiated” at Google websites. Ex. 2017 [Google S-1], 57. The claimed search engine annotation functionality makes search results more relevant and higher quality by reducing the time users have to spend looking for relevant results. Ex. 2016 [Osann Decl.], ¶¶35-39. This in turn leads to more users using Google for searches and more searches initiated on Google websites, which in turn leads to more success for Google’s advertising programs.

Accordingly, the commercial success of the claimed invention further demonstrates the claims were not obvious. Because the Petition cannot demonstrate a reasonable likelihood that any of the challenged claims are obvious, the Board should deny institution.

VII. CONCLUSION

For all of the foregoing reasons, Petitioner has failed to demonstrate a reasonable likelihood that any of the challenged claims 1-25 of the '184 Patent are unpatentable. Thus, institution of this *inter partes* review must be denied.

Dated: June 16, 2026

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CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(d), Patent Owner certifies that this Patent Owner's Preliminary Response has 11,282 words as counted by the word-processing system used to prepare this document. This word count complies with the 14,000 word limit under 37 C.F.R. § 42.24(b)(1).

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that the foregoing PATENT OWNER'S PRELIMINARY RESPONSE was served electronically via email on June 16, 2026, on the following counsel of record for Petitioners:

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