

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ORACLE CORPORATION,
Petitioner

v.

JOSEPH L. DEBELLIS,
Patent Owner

Case No. IPR2024-00221
U.S. Patent No. 6,760,720 B1

PETITIONER'S REPLY

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LISTING OF EXHIBITS

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1001	U.S. Patent No. 6,760,720 to DeBellis (the “720 Patent”)
1002	Patent Prosecution History for U.S. Patent No. 6,760,720 (the “720 FH”)
1003	Declaration of Dr. Erez Zadok (“Zadok”)
1004	<i>Curriculum Vitae</i> of Dr. Erez Zadok
1005	U.S. Patent No. 5,995,979 to Cochran, Filed Feb. 10, 1998 (“Cochran”)
1006	Mark Newsome et al., <i>HyperSQL: Web-based Query Interfaces for Biological Databases</i> , IEEE Computer Society, Proceedings of The Thirtieth Annual Hawaii International Conference on System Sciences (1997) (“HyperSQL”)
1007	U.S. Patent No. 6,433,797 to Zellweger, Filed July 15, 1999, Claiming Priority to Provisional Application No. 60/095,811, Filed Aug. 4, 1998 (“Zellweger”)
1008	<i>Reserved</i>
1009	<i>Using Microsoft Access 97</i> , Special Edition, by Roger Jennings (1997) (“Microsoft Access”)
1010	Library of Congress Catalog Entry for <i>Using Microsoft Access 97</i> , Special Edition, by Roger Jennings (1997) – Full Catalog Record
1011	Library of Congress Catalog Entry for <i>Using Microsoft Access 97</i> , Special Edition, by Roger Jennings (1997) – MARC Tags
1012	U.S. Patent No. 6,642,946 to Janes, Filed Aug. 12, 1999 (“Janes”)
1013	U.S. Patent No. 6,629,079 to Spiegel, Filed June 25, 1998 (“Spiegel”)

Exhibit	DESCRIPTION
1014	Declaration of Rachel J. Watters on Authentication of Publication: Mark Newsome et al., <i>HyperSQL: Web-based Query Interfaces for Biological Databases</i> , IEEE Computer Society, Proceedings of The Thirtieth Annual Hawaii International Conference on System Sciences (1997)
1015	Certification From the Library of Congress for <i>Using Microsoft Access 97</i> , Special Edition, by Roger Jennings (1997)
1016	Docket, <i>Vilox Technologies, LLC and Joseph DeBellis v. Oracle Corporation</i> , Case No. 1-23-cv-00302-MN (D. Del.)
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1020	Plaintiff's Original Complaint For Patent Infringement, <i>Vilox Technologies, LLC, et al. v. Salesforce, Inc.</i> , Case No. 6-22-cv-01255-FB (W.D. Tex. Dec. 5, 2022)
1021	Plaintiff's Original Complaint For Patent Infringement, <i>Vilox Technologies, LLC et al. v. Oracle Corporation</i> , Case No. 6-22-cv-01254-FB (W.D. Tex. Dec. 5, 2022)
1022	Letter from Oracle to Costco regarding Costco Request for Indemnity, dated Jan. 20, 2016 [PROTECTIVE ORDER MATERIAL - FILED UNDER SEAL]
1023	Order Re Stipulation of Dismissal Without Prejudice, <i>Vilox Tech., LLC v. Costco Wholesale Corp.</i> , No. 2-15-cv-2019-JRG-RSP (E.D. Tex. Mar. 22, 2016)
1024	<i>Reserved</i>

Exhibit	DESCRIPTION
1025	<i>Microsoft Computer Dictionary</i> , 4 th ed., Microsoft Press, 1999 (“Microsoft Dictionary”)
1026	<i>4.4BSD Programmer’s Reference Manual</i> , O’Reilly & Associates, Inc., 1994 (“BSD Programmer Manual”)
1027	<i>4.4BSD Programmer’s Supplementary Documents</i> , O’Reilly & Associates, Inc., 1994 (“BSD Supplementary Docs”)
1028	ANSI/ISO/IEC International Standard (IS), Database Language SQL, Part 2: Foundation (SQL/Foundation), International Standards Organization (ISO), 1999 (“SQL Standard”)
1029	<i>Oracle SQL*Plus: The Definitive Guide</i> , by Jonathan Gennick, O’Reilly & Associates, Inc., 1999 (“SQL*Plus Guide”)
1030	<i>ODBC 3.5 Developer’s Guide</i> , by Roger E. Sanders, McGraw-Hill, 1999 (“ODBC Guide”)
1031	<i>Oracle Developer, Guidelines for Building Applications, Release 6.0</i> , September 1998 (“Oracle Building Apps Guide”)
1032	Declaration of Jared Bobrow in Support of Petitioner’s Motion for Admission <i>Pro Hac Vice</i>
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1034	Reply Declaration of Dr. Erez Zadok (“Zadok”)

I. INTRODUCTION

Petitioner Oracle Corporation submits this reply in support of its Petition for IPR (Paper 1). Patent Owner's Response (Paper 13) makes two primary arguments: (1) the '720 patent is purportedly entitled to a January 1999 conception date, thus removing Zellweger as prior art; and (2) the claims supposedly require what Patent Owner calls a "dynamic" search engine, while the prior art in the Petition teaches only "static," unchanging search systems. Neither argument has merit.

Patent Owner failed to show prior conception. The Response—and the declarations that accompany it—do little more than allege that Patent Owner was working on some non-specific database product with indeterminate features and functionality in January 1999. The Response does not attempt to correlate Patent Owner's January 1999 work with the claims. Nor does the Response adequately corroborate any alleged conception with independent evidence. Patent Owner relies exclusively on his own and his sister's non-specific testimony. Patent Owner did not produce any documentary evidence pre-dating Zellweger. Patent Owner also failed to show that he proceeded diligently to reduction to practice. Indeed, Patent Owner does not account for almost half of the time period spanning Zellweger's July 1999 filing to Patent Owner's own constructive reduction to practice in February 2000.

Next, there is no difference between the '720 patent's claims and the prior art.

None of the claims make any reference to “dynamic” systems. Instead, the claims require only “determining a database schema,” “providing a list of the database fields,” “receiving a search selection,” “determining a quantity of entries,” and then “truncating” (if necessary) and “displaying” database entries. This is exactly what both Cochran and HyperSQL—the two primary references at issue here—do. In any event, even if this were somehow required, both Cochran and HyperSQL teach “dynamic” search systems. Both relate to database search interfaces that do not require a user to have any advance knowledge about the database being searched. And both teach interfaces that adapt to account for the categories of information stored within the searched database.

II. ARGUMENT

A. Zellweger Is Prior Art

Patent Owner begins by arguing that Zellweger “does not qualify as prior art.” Response at 1. The utility application underlying Zellweger was filed July 15, 1999. *See Zellweger, Cover*. According to Patent Owner, the ’720 patent’s subject matter was purportedly conceived before this in “January 1999.” Response at 1. Patent Owner also alleges that reduction to practice “beg[an]” in “May 1999.” *Id.* The ’720 patent was not filed until February 2000. *See Ex. 1001, Cover*.

Although Petitioner bears the ultimate burden of persuasion regarding patentability, Patent Owner bears a burden of production and must produce evidence

supporting his allegation of prior invention. *See Parus Holdings, Inc. v. Google LLC*, 70 F.4th 1365, 1371 (Fed. Cir. 2023). To satisfy this burden, Patent Owner must show either (1) conception and actual reduction to practice of the claimed subject matter prior to Zellweger's filing in July 1999, or (2) conception before July 1999 combined with reasonably continuous diligence from shortly before July 1999 to the date of actual or constructive reduction to practice. *See Perfect Surgical Techniques, Inc. v. Olympus Am., Inc.*, 841 F.3d 1004, 1008 (Fed. Cir. 2016). Alleged conception and reduction to practice cannot be shown via the inventor's testimony alone and must be corroborated with evidence independent of the inventor. *Mosaic Brands v. Ridge Wallet LLC*, 55 F.4th 1354, 1363-65 (Fed. Cir. 2022).

Patent Owner has come nowhere close to showing any of this. Patent Owner does not even explain what he purportedly conceived in January 1999 or at any other time prior to Zellweger's filing. He also has not corroborated any alleged conception with independent evidence, shown actual reduction to practice, or established that he proceeded diligently to constructive reduction to practice. As a result, '720 patent is not entitled to a date of invention any earlier than its filing in February 2000 and Zellweger remains prior art.

1. Patent Owner Has Not Shown Prior Conception

“Conception is the ‘formation, in the mind of the inventor of a definite and permanent idea of the complete and operative invention, as it is thereafter to be applied in practice.’” *Kolcraft Enters., Inc. v. Graco Child.’s Prods., Inc.*, 927 F.3d 1320, 1324 (Fed. Cir. 2019). A necessary pre-requisite for conception is the “inventor’s ability to describe his invention with particularity.” *Burroughs Wellcome Co. v. Barr Lab’ys, Inc.*, 40 F.3d 1223, 1229 (Fed. Cir. 1994). Conception is not complete until the subject matter at issue is “so clearly defined in the inventor’s mind that only ordinary skill would be necessary to reduce the invention to practice, without extensive research or experimentation.” *Mahurkar v. C.R. Bard, Inc.*, 79 F.3d 1572, 1577 (Fed. Cir. 2016). Evidence of conception “must include every feature or limitation of the claimed invention.” *REG Synthetic Fuels, LLC v. Nestle Oil Oyj*, 841 F.3d 954, 962 (Fed. Cir. 2016).

Patent Owner contends that he “conceived” of an “intuitive and flexible” “database management product” by “January 1999.” Ex. 2001, ¶ 45. This product purportedly allowed a “user” to “search large amounts of data across various databases organized in various ways.” *Id.*, ¶ 46. The product allegedly “would not only return all available results, but also would display all of the results on one page.” *Id.* To achieve this, Patent Owner contends that his product “us[ed] truncation to reduce ... results.” *Id.* Patent Owner then goes on to mention certain other purported

features of the database product, such as “options to filter,” the ability to “increas[e] the number of panes” to “drill down” data, “truncation of the alpha-numeric spectrum[,]” and the ability to engage in what Patent Owner calls “roll[ing] and tumbl[ing] data across ... multiple databases[.]” *Id.*, ¶¶ 46-47. Even accepting Patent Owner’s assertions as true, none of this comes close to showing prior conception of the claimed inventions.

To begin, whatever ideas Patent Owner had from January 1999 until Zellweger’s filing in July 1999 were not sufficiently definite, permanent, or complete such that they constitute conception of the ’720 patent’s claimed subject matter. Although Patent Owner asserts that he had a “vision” of a “database management product” by this time (Ex. 2001, ¶ 45), he admits that his thought process was nowhere near complete: he “continued working on developing a system that embodied” his purported “search-on-the-fly concepts throughout the summer of 1999.” *Id.*, ¶ 49. Moreover, rather than constituting routine, reduction to practice work, Patent Owner characterizes this post-January 1999 work—which purportedly continued until August or September 1999—as “unsuitable” and “frustrating.” Response at 18-19; *see also* Ex. 2001, ¶ 49. It follows that conception was not—and could not have been—complete by January 1999 or any other time before Zellweger’s filing. Patent Owner had not yet developed his ideas to a sufficient degree such that only routine skill was required to reduce them to practice. Instead,

months of further non-routine work and experimentation were admittedly needed. *See, e.g., Burroughs Wellcome*, 40 F.3d at 1229 (no conception where “the subsequent course of experimentation, especially experimental failures, reveals uncertainty that ... undermines the specificity of the inventor’s idea....”).

Next, Patent Owner points to nothing that even remotely shows prior conception of the ’720 patent’s ***claimed*** subject matter. Independent claims 1 and 3 are method claims. Both require performance of a series of specific steps. Claim 1 requires (1) “determining a database schema for a database,” (2) “providing a list of the database fields” (including “a descriptor indicating a data category”), (3) “receiving a search selection,” (4) “determining a quantity of entries in the selected database field,” and (5) either “truncating data” and then “displaying” this “truncated data” or simply “displaying contents of the database field” depending on whether “the quantity exceed[s] a specified amount.” *See* Ex. 1001, claim 1. Claim 3 includes analogous steps. *Id.*, claim 3.

Patent Owner addresses none of this. Instead, Patent Owner provides nothing more than a ***generic*** description of his purported January 1999 “vision.” No claim charts—or anything else correlating Patent Owner’s purported “vision” to the claims—are present in either the Response or the accompanying declarations. Indeed, Patent Owner has provided no documentation at all spanning the time-period from January 1999 to Zellweger’s July 1999 filing. There are no conceptual

drawings, invention disclosures, notes, flow charts, or anything else that provides insight into how the purportedly conceived database product was meant to operate. And while Patent Owner uses terminology like “panes,” “drill[ing] down,” and “roll[ing] and tumbl[ing]” when describing his “vision” (e.g., Ex. 2001, ¶ 46), there is no explanation of what significance this has to the ’720 patent’s claims. Among other things, Patent Owner points to nothing showing conception of a system that performs steps like “determining a database schema,” “providing a list of the database fields,” or “determining a quantity” of entries.

The Petition explained why Zellweger is prior art to the ’720 patent. *See* Petition at 20-21. This shifted the burden to Patent Owner to come forward with evidence showing an earlier date of invention. *See Parus Holdings*, 70 F.4th at 1371. To meet this burden, Patent Owner was required to not only submit whatever evidence he contends shows prior conception, but also provide “a detailed explanation of the significance of” that “evidence.” 37 C.F.R. 42.22(a)(2). By neglecting to discuss the claims, Patent Owner did not satisfy this burden. It is not enough to “simply ... throw[] ... evidence at the Board without explanation.” *Parus Holdings*, 70 F.4th at 1371-72; *see also TV Mgmt., Inc. v PerdiemCo LLC*, IPR2016-01278, Paper 52 at 19-20 (PTAB Dec. 15, 2017) (insufficient evidence of prior invention where Patent Owner provided only a “general discussion” of activities and not “an element-by-element” analysis); *see also Costar Realty Info., Inc. v. Clantech*,

Inc., IPR2022-00799, Paper 77 at 14-18 (PTAB Nov. 21, 2023) (conception arguments with “little or no explanation” regarding the “significance” of submitted evidence are insufficient); *Curt Mfg., LLC v. Horizon Global Ams. Inc.*, IPR2019-00625, Paper 31 at 66 (PTAB Aug. 11, 2020) (no prior conception because there was no “probative evidence” that the inventors’ purported activities “include[ed] all the elements and limitations” of the claims).

2. Patent Owner Has Not Adequately Corroborated Any Purported Prior Conception

Even if Patent Owner had shown prior conception—he did not—Patent Owner’s arguments fail for a separate reason. Conception cannot be proven via the inventor’s testimony alone. Corroborating evidence is required. *Apator Miitors ApS v. Kamstrup A/S*, 887 F.3d 1293, 1295 (Fed. Cir. 2018). This evidence must be from “a source independent of the inventor.” *Mosaic Brands*, 55 F.4th at 1363-65. The sufficiency of corroborating evidence is determined using a “rule of reason.” *Price v. Symsek*, 988 F.2d 1187, 1195 (Fed. Cir. 1993). Independent documentary and physical evidence is most probative of conception. *Mosaic Brands*, 55 F.4th at 1363; *TransWeb, LLC v. 3M Innovative Props. Co.*, 812 F.3d 1295, 1302 (Fed. Cir. 2016). In contrast, “oral testimony that is supported only by testimonial evidence of other interested persons” is least probative and should be viewed with skepticism. *Id.* This corroboration requirement—including the requirement that there be some independent, documentary evidence—guards against an “inventor ... describ[ing]

his actions in an unjustifiably self-serving manner....” *Apator Miitors*, 887 F.3d at 1295.

Here, Patent Owner relies solely on testimony. Although Patent Owner’s response and the accompanying declaration he authored point to some documents (including a credit card statement, computer equipment receipts, phone records, and a memorandum from his attorneys discussing patenting work, *see* Ex. 2001, ¶ 53; Exs. 2005, 2006, 2008), all of these are dated *after* Zellweger’s July 1999 filing. No documents show what Patent Owner purportedly conceived in January 1999 or at any time before July 1999. Again, corroborating documentary evidence is typically required. *See TransWeb*, 812 F.3d at 1302. This is particularly the case where—like here—Patent Owner has an interest in the proceeding. *See, e.g., id.* at 1301 (independent, documentary corroboration guards against interested witnesses’ “proneness to recollect things as the party calling them would have them recollect”). Moreover, even if Patent Owner’s documents did pre-date July 1999, they would still not be corroborating. The earliest documents—September and October 1999 phone records, credit card statements, and computer equipment receipts—do not themselves provide any insight into the technical aspects and features of Patent Owner’s alleged invention. Patent Owner’s testimony is required to understand their alleged pertinence. Without that testimony, the receipts and records could simply reflect standard, routine purchases and phone records. This renders them non-

corroborating. *See Kolcraft Enters.*, 927 F.3d at 1325-26 (physical exhibits not corroborating when inventor testimony is required to understand them); *Apator Miitors*, 887 F.3d at 1296-97 (similar).

Patent Owner also cites a declaration signed by his sister, Ms. Lucille Marie De Bellis. *See* Ex. 2002. This declaration also fails to support prior conception. To begin, because Ms. De Bellis is Patent Owner's sister, her testimony is not truly independent. Next, even if it were independent, Ms. De Bellis's testimony adds little. Ms. De Bellis explains that she "was employed as Office manager for the medical practice of" Patent Owner "Dr. Joseph L. De Bellis" from 1997 through 2002. *Id.*, ¶ 3. According to Ms. De Bellis, she "discuss[ed] ... concepts of the system" Patent Owner "envisioned in January 1999." *Id.*, ¶ 5. But besides noting that Patent Owner "wanted to be able to search and sort data according to any topic or term, rather than being constrained by the existing database software," Ms. De Bellis provides no detail at all regarding what was discussed in January 1999. *Id.* This testimony falls far short of corroborating any allegation that Patent Owner invented the *claimed* subject matter.

Ms. De Bellis's declaration then includes a series of paragraphs discussing purported work that allegedly occurred over the "next several months" following her "initial conversations" with Patent Owner. *See, e.g., id.*, ¶¶ 6-11. Here, Ms. De Bellis references various "terms" purportedly used by Patent Owner at the time. *See*

id. But it is not clear from Ms. De Bellis's declaration when she first heard the terms. Indeed, one of these paragraphs purporting to summarize conversations between Patent Owner and Ms. De Bellis discusses Figure 10 of the '720 patent at length. *See id.*, ¶ 11. This figure, according to Ms. De Bellis, was not generated until December 1999. *Id.*, ¶ 27. Thus, rather than corroborating Patent Owner's allegation that he conceived of the '720 patent's subject matter by January 1999, Ms. De Bellis' declaration *casts doubt* on the timing of Patent Owner's work by discussing work that occurred much later.

3. Patent Owner Has Not Shown Actual Reduction to Practice

Patent Owner also has not shown that the '720 patent's subject matter was actually reduced to practice. For there to have been an actual reduction to practice, (1) an embodiment meeting all the '720 patent's claims needed to exist and (2) this embodiment must have worked for its intended purpose. *See Mycogen Plant Sci. v. Monsanto Co.*, 243 F.3d 1316, 1332-33 (Fed. Cir. 2001). Patent Owner argues that he began the process of reducing his purported invention to practice in "May 1999." Response at 1. The date that reduction to practice began is not relevant. Only the date by which reduction to practice was complete matters.

Next, Patent Owner argues that he "demonstrated the system embodying his patented search-on-the-fly concepts to his attorneys" on December 9, 1999. *Id.* at 20. But there is no way to determine from Patent Owner's response and the

accompanying declarations whether this “system” (1) falls within the scope of the ’720 patent’s claims, or (2) worked as intended. Much as he did in connection with his purported prior conception, Patent Owner fails to provide any evidence regarding this system’s features or operation. Absent this required showing, Patent Owner cannot show actual reduction to practice. *See Mycogen Plant Sci.*, 243 F.3d at 1332-33.

4. Patent Owner Did Not Proceed Diligently to Patent Filing

Because Patent Owner did not show actual reduction to practice, he can only rely on the constructive reduction to practice that occurred when the ’720 patent was filed on February 25, 2000. Assuming Patent Owner did show prior conception (once again, he did not), the ’720 patent would only be entitled to this earlier conception date if Patent Owner worked diligently towards reduction to practice. Diligence must be shown for the entire critical period spanning from just before the prior art’s date of filing up until reduction to practice. *See Perfect Surgical Techniques*, 841 F.3d at 1007. Work towards reduction to practice must be “reasonably continuous.” *Arctic Cat Inc. v. GEP Power Prods., Inc.*, 919 F.3d 1320, 1331 (Fed. Cir. 2019)

Here, the critical period spans eight months, beginning shortly before Zellweger’s filing in July 1999 and ending when the ’720 patent was filed in late February 2000. There appears to have been no activity at all during half of this

period: Patent Owner provides no evidence of any work towards reduction to practice in July, November, January, and most of February. Patent Owner purportedly “discussed his concepts” with a “computer programmer, Adriano Freire” in August 1999 (Response at 18-19), but it is unclear if anything else occurred that month. Next, in September 1999, Patent Owner purportedly “hired Mr. Freire full-time for the sole and specific purpose of developing a data management system that embodied the concepts that form the basis of the ’720 Patent.” *Id.* at 19. Patent Owner also references some computer equipment purchases occurring from “September 1999 and continuing through December 1999.” *Id.* But, once again, Patent Owner fails to provide any substantive description of when work was performed, what progress was made, and what work product was generated. Finally, he notes that he “formally engaged lawyers” in November 1999 and met with them in December 1999 to “demonstrate[]” his system. *Id.* at 19-20. No other information regarding the patenting process is provided. Patent Owner does not explain why the ’720 patent was not filed until almost three months later.

This does not show diligence. Large portions of the critical period are entirely unaccounted for (all of July, November, January, and most of February, and August). *See Scharmann v. Kassel*, 179 F.2d 991, 997 (C.C.P.A. 1950) (no diligence when gaps in purported inventor’s activity were “not adequately explained”). And Patent

Owner points only to non-specific, indeterminate work for the rest of the critical period. *See, e.g., TV Mgmt.*, IPR2016-01278, Paper 52 at 22-24 (“obscure” documentation “provides scant evidence of what work was done and when (to any degree)” and does not show diligence).

B. There Are No Substantive Differences Between The ’720 Claims And The Prior Art

Patent Owner’s claim construction positions and assessment of the prior art do nothing to rebut Petitioner’s showing of unpatentability.

1. Patent Owner’s Claim Constructions Invite Error

Patent Owner begins his assessment of the prior art by proposing a variety of claim constructions. No explanation, however, is provided of how these various constructions bear on the parties’ dispute. The Board is only required to construe terms to the extent necessary to resolve differences between parties’ positions. *See Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999). None of Patent Owner’s proposed constructions meet this requirement. Moreover, every one of the proposed constructions departs from the plain meaning of the claims and improperly reads in a variety of additional, unclaimed limitations.

“[D]etermining a database schema.” Patent Owner’s proposed construction—“ascertaining or identifying the logical structure of data stored in computerized files”—appears to be little more than a restatement of the claim language. Response at 13. But Patent Owner then goes on to argue that this

somehow limits the '720 patent's claims to "a dynamic search engine" and excludes any "preconfigur[ing]" of this "search engine" to "match the existing structure of the database to be searched." Response at 13. None of this is required. The word "dynamic" does not appear in the '720 patent's specification or claims. Nor do either the claims or the specification exclude "preconfigured" search systems. Independent claims 1 and 3 are directed to a "method ... for searching databases." See Ex. 1001, claims 1, 3. The claims simply require the performance of a series of steps. Any performance of those steps—regardless of whether this is done "dynamically" or as part of a "preconfigured" process—satisfies the claims. Indeed, the '720 patent itself explains that its database search functionality can be "incorporated into the structure of" the database itself (which is, of course, already aware of its own schema). Ex. 1001, 4:19-21.

"[P]roviding a list of the database fields" and "determining a quantity of entries in the selected database field." Patent Owner argues that these steps must be performed "at the time the search query was submitted" and "at the time a database search is executed." Response at 14. The claims include no such timing requirement.

"[T]runcating data." According to Patent Owner, this limitation requires "reducing the amount of data returned as a result of the database search." Response at 14. Per Patent Owner, the "truncation" must be a "complete representation of the

entire content of a selected data field on one page.” *Id.* at 15. And “truncation” must be “executed until the result list can be displayed.” *Id.* The ’720 patent’s claims already specify the type of “truncating” that must occur: “the truncating reduces characters in one or more entries” such that “the truncated data represents each of the entries in the selected database field.” Ex. 1001, claim 1. Nothing in the claim language requires “completeness” beyond each of the entries in the field being represented in the truncated data. Moreover, there is no requirement that truncation occur continuously or iteratively “until the result list can be displayed.”

2. Ground 1: Obviousness Over Cochran and Zellweger

Patent Owner points to a number of limitations in claims 1, 3, and 6 that purportedly are missing from the prior art. None of these arguments has merit.

a. Claim 1

Patent Owner begins by arguing that Cochran and Zellweger do not teach “*determining a database schema*” or “*providing a list of the database fields.*” According to Patent Owner, these references purportedly only “operate by generating static, as opposed to dynamic, search templates for searching a known database having a known database schema.” Response at 22-23. This misinterprets the claim and fails to account for the prior art’s teachings.

The ’720 patent’s claims do require “determining a database schema” and then “providing a list of the database fields.” But they impose no further restriction on

how this determination and provision must occur. The '720 patent itself confirms this. While the patent's "search engine ... may identify a database schema ... using a trial and error process" in one embodiment, any "other techniques [known] in the art" can also be employed. Ex. 1001, 5:4-6. For instance, database "information 161" can simply be received "from the database driver 170" and then used to "provide[] a list 163 of available data fields...." *Id.*, 4:60-64. This functionality may be entirely "incorporated into the structure of ... the database[]" itself. *Id.*, 4:15-21. In other words, this portion of the claimed method can entail nothing more than a database accessing its own organizational structure and then relaying information about this structure for display by, for example, a user's system. See Ex. 1034, ¶¶ 7-17.

The prior art teaches this element. Cochran teaches that searchable information is stored in a database as records, each of which has "multiple fields" or "indexes." Petition at 24 (*citing* Cochran, 1:21-29). Then, during searching, Cochran's system presents user with lists of "available choices," allowing the user to search without knowing how the "database was organized." Petition at 25 (*citing* Cochran, 11:38-48). Cochran's "server 710 transmits information ... to the user's computer 720," including "a plurality of list identifiers and lists of search terms associated with those list identifiers." Cochran, 7:9-15. The transmitted "list identifiers are terms or phrases identifying the various categories of information that

the user may select when formulating a search strategy.” *Id.*, 7:19-21; *see also id.*, Fig. 2 (“list identifiers” and “list of search terms” transmitted at step 10); 1:23-30 (“list identifiers” are the categories into which the database is organized); 5:52-56 (similar). So, Cochran’s system does in fact “*determin[e] a database schema*” and “*provid[e] a list of the database fields*”: it assembles and transmits to a user a collection of “list identifiers” and “search terms” that correspond to a database’s organizational scheme.

Even if the claims required that these steps be done “dynamically,” the prior art teaches such a system. Contrary to Patent Owner’s argument, Cochran is not limited to “static ... search templates for searching a known database.” *E.g.*, Response at 22-23. Cochran repeatedly explains that its system is different from and overcomes the limitations of “typical single-hierarchical search systems[]” that employ a “predetermined” search procedure. Cochran, 2:34-3:65. Rather than forcing a user to follow a “predetermined” search, Cochran “enable[s] a user to view different lists of choices, or search terms, that are available in a unique search situation.” *Id.*, 4:20-22. Further, “[o]nly choices or search terms that are actually available are presented to the user.” *Id.*, 4:29-30. Put another way, Cochran “takes into account the information that is available in the database ... during a particular search.” *Id.*, 4:44-46. It follows that Cochran’s system is ***dynamic***, not static: the database information and search options presented to a user reflect the organizational

structure of and data within the database at the time of searching. *See* Ex. 1034, ¶¶ 19-24.

Cochran does include an example where its system is employed to query one particular “database ... known by the trade name ‘TRAVEL SEARCH’™” that “consists of database records of more than 13,000 hotels, resorts, and inns in the United States.” *Id.*, 6:58-64. But Cochran explains that this is simply meant to be a non-limiting “preferred embodiment.” *Id.*, 6:58-67, 9:60-62. “A reference must be considered for everything that it teaches, not simply the described invention or a preferred embodiment.” *In re Applied Materials, Inc.*, 692 F.3d 1289, 1298 (Fed. Cir. 2012). And here, Cochran itself states that its system is not limited to any one database but is instead designed to provide a “user-friendly method of searching computer databases.” Cochran, 4:2-6 (emphasis added); *see also id.*, 5:39-41 (similar). Indeed, Cochran references several other such databases, including a “phone directory,” “a database of products that are for sale,” and a “general information database.” *See id.*, 1:26-29, 2:24-57, 2:59-3:4. The list identifiers and search terms that will be determined and then provided to a user when searching these databases will of course be different from those associated with the TRAVEL SEARCH database. *See, e.g., id.*, 2:24-58 (database of “midsized automobiles” may include categories such as “manufacturer,” “model names” and “price”); *see also* Ex. 1034, ¶¶ 25-29.

Moreover, even Cochran’s discussion of the TRAVEL SEARCH database evinces the flexibility of its system. Cochran begins by explaining that the interface presented to a user when searching this database may include only four list identifiers: “Start of Travel,” “Number of People,” “Location,” “Lodging Type,” and “Lodging Name.” *Id.*, 7:21-24. But if the database includes additional categories of information—such as “Amenities” and “Price”—these may also be provided. *Id.*, 8:59-65; *see also id.*, Fig. 3a. Alternatively, the search interface can display a different set of identifiers: “State Name,” “City Name,” “Hotel Name,” and “Price.” *Id.*, Fig. 10a. The selectable options within each of the displayed database fields/identifiers is likewise customized to match what is stored within the database. *See id.*, 11:49-50 (a “complete list of search terms ... available” in database is provided); *see also id.*, 11:56-57 (unavailable search terms are not displayed); 13:50-55 (“only the search terms that are available ... are displayed”). Thus, Cochran’s system dynamically adapts to the database being searched: the user is provided with a search interface that reflects how data in the database is organized. *See Ex. 1034*, ¶¶ 30-36.

Patent Owner next argues that Cochran and Zellweger do not “*determin[e] a quantity of entries in the selected database field*” or “*truncat[e]*” data in the way the claims require. Response at 23. In doing so, Patent Owner does not address the totality of the art’s teachings and offers little more than a conclusory denial.

First, in connection with the limitation requiring “*determining a quantity of entries in the selected database field,*” the Petition pointed to teachings in both Cochran and Zellweger. *See* Petition at 27-31. As explained, a POSITA would have understood that Cochran makes an entry quantity determination because, for example, it decides whether a scroll bar is necessary. *See id.* at 28. And Zellweger separately teaches that the quantity of database entries is determined as part of its tab generation and result display formatting process. *See id.* at 29-30. Patent Owner neither addresses nor disputes this.

Next, the Petition explained that Zellweger teaches the claimed “*truncating*”: in Zellweger, database search results are displayed as either an “Alphabet List” that truncates each entry to a single letter or a “Content List” that truncates entries into intervals. *Id.* at 31-32. Patent Owner does not discuss Zellweger’s “Alphabet List” or offer any explanation of why truncating results to a single letter does not satisfy the claims. This is likely because the ’720 patent itself employs the same method of truncation. *See, e.g.,* Ex. 1001, 9:59-60 (“In FIG. 10, the menu 203 shows the results of the truncation with only the first letter of a city name displayed.”); Fig. 10.

Patent Owner does discuss Zellweger’s “Content List.” According to Patent Owner, this does not teach what the claim requires because author names are “not completely visible” in Figure 7 of Zellweger. Response at 23. Patent Owner also posits that the name intervals “do not represent each of the author entries.” Response

at 23. But the Petition did not rely on Figure 7 alone. Instead, it pointed to both the Figure and Zellweger’s accompanying textual discussion, which clarified that in the Figure, “[e]ach tab entry ... depicts an interval using the author’s last name as the first and last elements.” Zellweger, 4:45-53. In other words, the intervals are representative of the entire list of entries and those intervals would be displayed to the user as “truncated data.” Claim 1 does not require that there be a one-to-one ratio between displayed “truncated data” and displayed “entries.” Instead, the “truncated data” is only required to ***“represent[] each of the entries.”*** Ex. 1001, claim 1. This is exactly what Zellweger’s “Content List” does: all the author names in its database fall within the range of and are thus represented by one of the displayed author name intervals. *See* Zellweger, 4:45-53; Fig. 7.

b. Claim 3

Patent Owner references claim 3 in his response but merely refers to claim 1. *See* Response at 23-24. As explained, the art teaches what this claim requires.

c. Claim 6

Here, Patent Owner argues that because Cochran employs a scroll bar, it is unable to determine a ***“specified limit”*** of displayable database entries ***“dynamically ... based on a characteristic of the terminal.”*** Response at 24. This, like all of Patent Owner’s arguments, does not fully address the evidence of record. Per Cochran, if a selected “pick-box area is too small to display all of the available search

terms, then scrolling is permitted....” Cochran, 10:57-60. Petitioner’s expert Dr. Zadok explained this determination of whether a scroll bar is needed involves the consideration of two interrelated factors: the number of results and display size. *See* Ex. 1003, ¶¶ 243-244. A smaller display accommodates fewer entries and thus will trigger scrolling (or truncation) at a lower entry limit. *See id.* A larger display accommodates more entries and will trigger scrolling (or truncation) at a higher entry limit. *See id.* It is this functionality—and not the use of scrolling standing alone—that renders claim 6 obvious.

3. Ground 2: Obviousness Over HyperSQL and Zellweger

Patent Owner also argues that the combination of HyperSQL and Zellweger does not render the claims obvious. *See* Response at 25. But rather than explaining why this is the case, he simply presents a bald denial. This does not establish non-obviousness. *See, e.g., Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9 at 14 (PTAB Aug. 24, 2022) (precedential) (arguments must be supported by “sufficient evidence or persuasive reasoning”). To the extent Patent Owner intends to argue that HyperSQL, like Cochran, is limited to a “static” system for searching a “known” database, this fails for the same reasons discussed above. As explained, the ’720 patent’s claims embrace systems where a database relays a listing of database categories and information to a user’s device for display. *See supra* Section II.B.2.(a). This is what HyperSQL does. *See* Petition at 58-61.

Moreover, like Cochran, HyperSQL is not limited to a “static” and unchanging search system. Instead, it allows users to search *multiple* “remote Sybase *databases*” without having to “look up the names of tables and data items.” HyperSQL, 329 (emphasis added). Moreover, HyperSQL allows for generation of a query form that adapts to the database being searched by “presenting” the user with “introductory information about the database and displaying a list of queries, organized by subject” corresponding to the database’s organizational structure. *Id.*, 330. In other words, the system automatically provides information about the database being accessed and automatically queries the database based on user selections. *Id.*, 329-330; *see also* Ex. 1034, ¶¶ 37-42.

III. CONCLUSION

For the reasons explained above and in the Petition, Petitioner requests that all the challenged claims be found unpatentable.

Respectfully submitted,

ORRICK, HERRINGTON & SUTCLIFFE LLP

Dated: January 17, 2025

/K. Patrick Herman/

K. Patrick Herman, Reg. No. 75,018

Orrick, Herrington & Sutcliffe LLP

51 West 52nd Street

New York, NY 10019

Telephone: (212) 506-3596

Email: P52PTABDocket@orrick.com

Counsel for Petitioner

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The undersigned certifies that the foregoing paper complies with the type-volume limitation in 37 C.F.R. § 42.24. According to the utilized word-processing system's word count, the paper contains 5,577 words.

Dated: January 17, 2025

By: /K. Patrick Herman/

K. Patrick Herman, Reg. No. 75,018
Orrick, Herrington & Sutcliffe LLP
51 West 52nd Street
New York, NY 10019
Telephone: (212) 506-3596
Email: P52PTABDocket@orrick.com

Counsel for Petitioner

CERTIFICATE OF SERVICE

The undersigned hereby confirms that the foregoing paper was caused to be served on January 17, 2025 via email upon Patent Owner at the address indicated:

Joseph L. De Bellis
282 Edge of Woods Rd.
Southampton, NY 11968
josephdebellis@gmail.com

/K. Patrick Herman/

K. Patrick Herman, Reg. No. 75,018
Orrick, Herrington & Sutcliffe LLP
51 West 52nd Street
New York, NY 10019
Telephone: (212) 506-3596
Email: P52PTABDocket@orrick.com