

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ORACLE CORPORATION,
Petitioner,

v.

JOSEPH L. DE BELLIS,
Patent Owner.

IPR2024-00221
Patent 6,760,720 B1

Before KRISTEN L. DROESCH, JON M. JURGOVAN, and
AARON W. MOORE, *Administrative Patent Judges*.

JURGOVAN, *Administrative Patent Judge*.

DECISION
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

A. *Background and Summary*

Oracle Corporation (“Petitioner”) filed a Petition requesting *inter partes* review of claims 1–7, 15–23, and 25–30 (“the challenged claims”) of U.S. Patent No. 6,760,720 B1 (Ex. 1001, the “’720 patent”). Paper 1 (“Petition” or “Pet.”). Patent Owner, Dr. Joseph L. De Bellis, did not file a preliminary response. We instituted *inter partes* review pursuant to 35 U.S.C. § 314(a) on all challenged claims and grounds. Paper 9 (“Institution Decision” or “Inst. Dec.”).

Following institution, Patent Owner filed a Response (Paper 13, “PO Resp.”), Petitioner filed a Reply (Paper 26, “Pet. Reply”), and Patent Owner filed a Sur-Reply (Paper 28, “PO Sur-Reply”).

Petitioner requested oral argument (Paper 29). A hearing was conducted on March 19, 2025, and a transcript is included in the record. Paper 31 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is entered pursuant to 35 U.S.C. § 318(a). Having reviewed the complete trial record, we determine that Petitioner has shown, by a preponderance of the evidence, that challenged claims 1–7, 15–23, and 25–30 are unpatentable.

B. *Real Parties in Interest*

Petitioner and Patent Owner (“the parties”) identify themselves as the real parties-in-interest. Pet. 4; Paper 4, 1 (Patent Owner’s Mandatory Notices).

C. Related Matters

Petitioner and Patent Owner identify the following as pending matters related to this proceeding:

- *Vilox Technologies, LLC and Joseph De Bellis v. Oracle Corporation*, Case No. 1-23-cv-00302-MN (D. Del.), which was transferred from W.D. Tex. (*Vilox Technologies, LLC, et al. v. Oracle Corporation*, Case No. 6-22-cv-01254-FB (W.D. Tex.))

- *Vilox Technologies, LLC v. Salesforce, Inc.*, Case No. 3-23-cv-05047-AMO (N.D. Cal.), which was transferred from W.D. Tex. (*Vilox Technologies, LLC, et al v. Salesforce, Inc.*, Case No. 6-22-cv-01255- FB (W.D. Tex.))

- *Oracle Corporation v. Vilox Technologies, LLC and Joseph De Bellis*, Case No. 1-23-cv-00126-MN (D. Del.)

Pet. 4–5; Paper 4, 2.

The parties identify the following matters as ones previously involving the '720 patent:

- *Vilox Technologies LLC v. MindGeek USA Inc.*, Case No. 2-16-cv-01278-JRG-RSP (E.D. Tex.).

- *Vilox Technologies LLC v. Costco Wholesale Corporation*, Case No. 2-15-cv-02019-JRG-RSP (E.D. Tex.) (consolidated with *Vilox Technologies LLC v. L Brands, Inc. et al.*, Case No. 2-15-cv-02028 (E.D. Tex.)).

- *Vilox Technologies LLC v. Express, Inc. et al.*, Case No. 2-15-cv-02025 (E.D. Tex.) (consolidated with *Vilox Technologies LLC v. L Brands, Inc. et al.*, Case No. 2-15-cv-02028-JRG-RSP (E.D. Tex.)).

- *Vilox Technologies LLC v. Expedia, Inc. et al.*, Case No. 2-15-cv-01457-JRG-RSP (E.D. Tex.) (consolidated with *Vilox Technologies LLC v. Foot Locker, Inc. et al.*, Case No. 2-15-cv-01458-JRG-RSP (E.D. Tex.)).

- *Vilox Technologies LLC v. Orbitz Worldwide, Inc. et al.*, Case No. 2-15-cv-01459-JRG-RSP (E.D. Tex.) (consolidated with *Vilox Technologies LLC v. Foot Locker, Inc. et al.*, Case No. 2-15-cv-01458-JRG-RSP (E.D. Tex.)).

- *Vilox Technologies LLC v. The Priceline Group, Inc. et al.*, Case No. 2-15-cv-01460-JRG-RSP (E.D. Tex.) (consolidated with *Vilox Technologies LLC v. Foot Locker, Inc. et al.*, Case No. 2-15-cv-01458-JRG-RSP (E.D. Tex.)).

Pet. 4–6.

D. The '720 Patent

The '720 patent is titled “Search-on-the-Fly/Sort-on-the-Fly Search Engine for Searching Databases.” Ex. 1001, code (54). The '720 patent discloses that its “search engine provides [] intuitive mechanisms for searching databases, allowing a user to access data in [a] database without having to know anything about the database structure.” *Id.* at code (57). “A user selects a desired search term, and a database manager searches the database for all instances of the desired term” and the “database need not have a specific file (in a flat database) or a table (in a relational database) of names.” *Id.* at 2:35–38, 43–46. “The user may perform further on-the-fly searches to narrow or focus the search results” or the search may be broadened. *Id.* at 2:44–46, 2:52–54.

The search-on-the-fly function of the search engine determines available data fields of the database, which may be identified by data field

descriptors. *Id.* at 5:42–47. The list of data fields may be presented to a user at a terminal, for example, in a pull-down list, and the user may select one or more of the data field descriptors to search (e.g., “city”). *Id.* at 5:48–51, 5:59–61. If the number of entries or records is short, the complete result list (e.g., city names) may be displayed. *Id.* at 5:61–53. “If the entries are too numerous to be displayed within a standard screen size, for example, the search engine [] may, in an iterative fashion, attempt to reduce, or truncate, the result list until the result list may be displayed.” *Id.* at 5:63–67.

Figure 13 of the '720 patent is reproduced below.

Fig. 13

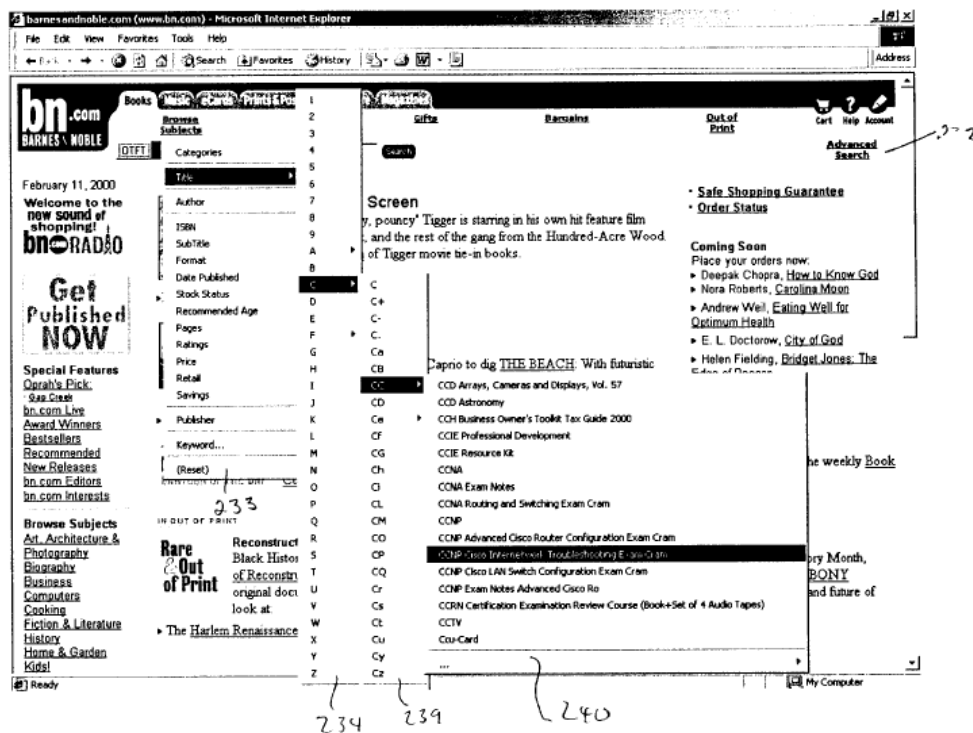


Figure 13 shows an exemplary search of a remote database (e.g., database 13 shown in Fig. 1). *Id.* at 10:37–38. The search of the database returns a list 233 of titles to the terminal. *Id.* at 10:46–48. Because the list 233 of titles is too large to display on the terminal, truncator 152 loops until an

alphanumeric list 234 is created and returned to the terminal. *Id.* at 10:48–51. For the next cycle, the user selects titles beginning with the letter “C.” *Id.* at 10:51–52. Since the data field again contains too many entries to conveniently display on the terminal, the truncator 152 loops as appropriate to create subsequent lists¹ that are returned to the terminal. *Id.* at 10:52–56.

E. Challenged Claims

Claims 1 and 3 are independent. Claim 2 depends from claim 1, and claims 4–7, 15–23, and 25–30 depend from claim 3. Claim 1 is set forth below, with limitation identifiers indicated in brackets.

1. [PRE] A method implemented on a computer for searching databases, comprising:
 - [A] determining a database schema for a database, wherein the database includes database fields;
 - [B] providing a list of the database fields, wherein the list includes a descriptor indicating a data category;
 - [C] receiving a search selection for a database field on the provided list of the database fields; [and]
 - [D] determining a quantity of entries in the selected database field,
 - [E] if the quantity exceed[s] a specified amount, truncating data, and displaying the truncated data wherein the truncating reduces characters in one or more entries in the selected database field and the truncated data represents each of the entries in the selected database field; and
 - [F] if the quantity does not exceed the specified amount, displaying contents of the database field.

Id. at 17:2–18.

¹ The specification numbers the subsequent lists “236” and “237” while Figure 11 numbers them “239” and “240.”

Claim 3 is set forth below, with limitation identifiers indicated in brackets.

3. [PRE] A method implemented on a computer for searching a database, comprising:

[A] generating a list of data fields;

[B] receiving a first data field selection from the list of data fields;

[C] determining a first quantity indicative of a number of entries of the selected data field;

[D] if the first quantity exceeds a specified limit, reducing a size of data to be displayed from the selected data field wherein the reducing reduces characters in one or more entries in the selected data field and the size-reduced data represents each of the entries in the selected field; and

[E] displaying data from the selected data field.

Id. at 17:21–35.

F. Evidence of Record

Petitioner relies upon the following prior art references²:

Name	Reference	Date	Exhibit No.
Cochran	US 5,995,979	Issued Nov. 30, 1999	Ex. 1005
HyperSQL	Proc. of 13 th Annual Hawaii Int’l. Conf. on Sys. Sciences, Vol. IV, 1997, pp. 329–339	Published Jan. 1997	Ex. 1006
Zellweger	US 6,433,797 B1	Issued Aug. 13, 2002	Ex. 1007
Microsoft Access	Using Microsoft Access 97, Roger Jennings, Que Corp., 1997	Published Jan. 10, 1997	Ex. 1009
Janes	US 6,642,946 B1	Issued Nov. 4, 2003	Ex. 1012
Spiegel	US 6,629,079 B1	Issued Sept. 30, 2003	Ex. 1013

In support of its challenges, Petitioner relies on a declaration from Erez Zadok, Ph.D. Ex. 1003. Patent Owner relies on declarations from himself and Ms. Lucille Marie De Bellis. Ex. 2001 (Dr. De Bellis); Ex. 2002 (Ms. De Bellis); Ex. 2003 (Dr. De Bellis); and Ex. 2004 (Ms. De Bellis). The parties also submitted various other exhibits in the record.

² Petitioner contends that the references were filed, published or issued before the ’720 patent’s filing date of February 25, 2000. Pet. 13. Petitioner contends that all of these prior art references are prior art to the ’720 patent under 35 U.S.C. §§ 102(b) and (e) (pre-Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”)). *Id.* at 17–23.

G. The Asserted Challenges to Patentability

Petitioner asserts the following challenges to patentability:

Ground	Challenged Claims	35 U.S.C. §	Reference(s)/Basis
1	1–7, 15–20, 27–30	103(a)	Cochran, Zellweger
2	1–5, 7, 15–19, 27–30	103(a)	HyperSQL, Zellweger
3	21–23	103(a)	HyperSQL, Zellweger, Microsoft Access
4	25	103(a)	HyperSQL, Zellweger, Microsoft Access, Janes
5	26	103(a)	Cochran, Zellweger, Janes, Spiegel

Pet. 14.

II. ANALYSIS AND DISCUSSION

In this section, we discuss Petitioner’s challenges to claims 1–7, 15–23, and 25–30 of the ’720 patent, and Patent Owner’s arguments for patentability. For the reasons that follow, we determine that Petitioner has shown that claims 1–7, 15–23, and 25–30 would have been obvious under grounds 1 to 5.

A. Claim Construction

We construe the challenged claims under the same standard used by a federal court in a civil action under 35 U.S.C. § 282(b). 37 C.F.R. § 42.100(b). This standard is articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc) and its progeny, and includes “construing the claim in accordance with the ordinary and customary meaning of such

claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” 37 C.F.R. § 42.100(b).

Only claim terms in controversy need to be construed, and only to the extent necessary to resolve the controversy. *See Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

Patent Owner proposes constructions for several limitations of claims 1 and 3. PO Resp. 12–15. Petitioner asserts that Patent Owner’s claim constructions invite error, depart from the plain meaning of the claims, and improperly read in additional, unclaimed limitations. Pet. 17; Pet. Reply 14–16.

We discuss the parties’ proposed constructions below and provide constructions as necessary, consistent with the ordinary and customary meanings of the claim terms. Throughout this decision, we use Petitioner’s identifiers to indicate the claim limitations under discussion. *See* § I.E, *supra*.

1. Limitation 1.A: “determining a database schema for a database”

Patent Owner argues that the ’720 patent discloses a “dynamic search engine” that is adaptable “on-the-fly” to search any database without the need for the search engine to be “preconfigured” to match the structure of the database to be searched. PO Resp. 13.

Petitioner argues that the claim language does not require a “dynamic” search engine, nor does it exclude “preconfiguring” a database’s schema. Pet. Reply 14–15 (citing PO Resp. 13).

Reviewing the intrinsic evidence, we determine that Petitioner’s construction is correct. The ’720 patent does not require “dynamic” or “on-

the-fly” searching.³ Such a construction is inconsistent with the testimony of Petitioner’s expert, Dr. Zadok, as well as the Microsoft Computer Dictionary definition for “schema” that he cites. Ex. 1001, 1:38–40; Ex. 1003 ¶ 84; Ex. 1025, 28. We need not construe the language any further to resolve the parties’ dispute over this claim language. *See Nidec, supra*.

2. *Limitation 1.B: “providing a list of the database fields”*

Patent Owner asserts that, “[p]roperly construed, the limitation means the search engine program presents a list of the database fields that were determined at the time the search query was submitted.” PO Resp. 14 (emphasis omitted). Petitioner contends that “[t]he claims include no such timing requirement.” Pet. Reply 15.

Patent Owner does not identify any evidence in the ’720 patent, its file history, or elsewhere, to support its restrictive construction of the claim language, nor do we find any lexicographical definition or disavowal of claim scope to support it. *Luminara Worldwide, LLC v. Liown Elecs. Co.*, 814 F.3d 1343, 1353 (Fed. Cir. 2016) (“Absent lexicography or disavowal, we do not depart from the plain meaning of the claims”).

Hence, the ordinary and customary meaning of “providing a list of database fields” in limitation 1B is not limited to the time a search query was

³ A patent related to the ’720 patent, US Patent No. 9,507,835 B2, filed December 17, 2015, uses the term “search-on-the-fly” in its claims. In contrast, the ’720 patent’s claims are directed toward the truncation feature described in the patent. This suggests that Patent Owner chose not to limit the ’720 patent’s claims to the context of “search-on-the-fly” notwithstanding the ’720 patent’s title. Ex. 1001, code (54).

submitted.

3. *Limitation 1.D: “determining a quantity of entries in the selected database field”; Limitation 3.C: “determining a first quantity indicative of a number of entries of the selected data field”*

Patent Owner argues that “determining a number of entries in the selected database field”⁴ should be construed to mean that “at the time a database search is executed, the search engine program determines how many entries exist in the database field.” PO Resp. 14. Petitioner contends that “[t]he claims include no such timing requirement.” Pet. Reply 15.

The ’720 patent discloses embodiments that use preset or specified limits to determine the number of entries in the database field for display, which need not be determined during a search. Ex. 1001, 7:43–45 7:61–62. Patent Owner’s proposed construction would improperly exclude these embodiments. *Oatey Co. v. IPS Corp.*, 514 F.3d 1271, 1277 (Fed. Cir. 2008) (incorrect to interpret claim to exclude embodiment); *Google LLC v. EcoFactor, Inc.*, 92 F.4th 1049, 1058 (Fed. Cir. 2024).

Moreover, we find no lexicography or disavowal of scope in the ’720 patent or its file history that would require determining the quantity or number of entries in a selected database field to be performed during a database search. *See Luminara, supra*.

Hence, we decline Patent Owner’s proposed construction of requiring limitations 1D and 3D to be performed during a database search because no such language appears in these limitations.

⁴ This is not the exact language of either limitation 1D or limitation 3C but it is our understanding that Patent Owner’s proposed construction relates to these limitations.

4. *Limitation 1.E: “if the quantity exceed[s] a specified amount, truncating data”; Limitation 3.D: “if the first quantity exceeds a specified limit, reducing a size of data”*

Patent Owner contends that “truncating data should be construed to mean reducing the amount of data returned as a result of the database search.” PO Resp. 14 (citing Ex. 1001, 5:66–67). *Id.*

Patent Owner’s construction would change the meaning of the claim language significantly, because the word “returned” implies the search engine is outside of the database when the ’720 patent describes an embodiment where it is within the database’s structure. Ex. 1001, 4:19–21. Patent Owner’s construction would improperly exclude this embodiment. *See Oatey and Google, supra.*

Moreover, limitations 1.E and 3.D “are ordinary, simple English words whose meaning is clear and unquestionable.” *Chef America, Inc. v. Lamb-Weston, Inc.*, 358 F.3d 1371, 1373 (Fed. Cir. 2004). In other words, the limitations mean what they say, i.e., if the quantity exceeds a specified amount, truncating data (limitation 1.E) or reducing its size (limitation 3.D).

5. *Limitation 1.E: “wherein the truncating reduces characters in one or more entries in the selected database field”; Limitation 3.D: “wherein the reducing reduces characters in one or more entries in the selected database field”*

Patent Owner argues that limitations 1.E and 3.D should be construed as requiring the truncating to cycle iteratively until a complete representation of the selected database field is available for display on a single page appropriate for the size of a terminal’s display so that a user can search, scroll and identify any missing entries. PO Resp. 14–15 (citing Ex. 1001, 6:61–7:43). Petitioner asserts that these limitations do not require

“completeness” or that the truncation must occur continuously or iteratively until the result list can be displayed. Pet. Reply 16.

We agree with Petitioner’s contentions. Although certain features that Patent Owner mentions are disclosed in the ’720 patent, we find no lexicography or disavowal of claim scope that would require these features to be considered part of limitations 1E and 3D. *See, e.g., Cont’l Circuits LLC v. Intel Corp.*, 915 F.3d 788, 799–00 (Fed. Cir. 2019) (holding that claim terms should not be limited to require a process described in patent’s specification).

As the meaning of limitations 1E and 3D is clear from their language, we apply the ordinary and customary meaning consistent with 37 C.F.R. § 42.100(b). *See Chef America, supra*.

B. Legal Standards for Obviousness

A patent claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) where present, objective evidence of nonobviousness.⁵ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

⁵ “There is no evidence of any secondary considerations of non-obviousness” on this record. Pet. 98 (citing Ex. 1003 ¶ 523).

C. Level of Ordinary Skill in the Art

The person of ordinary skill in the art is a hypothetical person who is presumed to know the relevant prior art. *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (citing *Custom Accessories, Inc. v. Jeffrey–Allan Indus., Inc.*, 807 F.2d 955, 962 (Fed. Cir. 1986)). In determining the skill level, the Board may consider various factors including “the type of problems encountered in the prior art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *Id.* In a given case, every factor may not be present, and one or more factors may predominate. *Id.*

Petitioner contends as follows:

A person of ordinary skill in the art at the time of the alleged invention (“POSITA”) would have had at least a bachelor’s degree in computer science, electrical engineering, or a related subject, and at least two years of experience working with databases, computer networks, and related web technologies. A more advanced degree can substitute for less work experience and vice versa.

Pet. 17 (citing Ex. 1003 ¶¶ 57–61).

Patent Owner does not dispute Petitioner’s proposed level of skill in the art, which is consistent with the problems, solutions, technology, and educational level set forth in the ’720 patent and the prior art references asserted by Petitioner. *See generally* PO Resp.; *Okajima v. Bourdeau*, 261 F.3d 1350, 1354–55 (Fed. Cir. 2001) (the applied prior art may reflect an appropriate level of skill). Accordingly, we apply Petitioner’s proposed level in this Decision.

D. Zellweger's Prior Art Status

A reference is prior art under pre-AIA 35 U.S.C. § 102(e) if “the invention was described in . . . a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent.” *Medtronic, Inc. v. Teleflex Innovations S.A.R.L.*, 68 F.4th 1298, 1302–03 (Fed. Cir. 2023). A patent owner may antedate an asserted prior art patent by showing conception and actual reduction to practice of the claimed invention prior to the effective date of the reference, or by prior conception followed by “reasonably continuous diligence” from just before the reference’s effective date to actual or constructive reduction to practice. *Id.* (citing *ATI Techs. ULC v. Iancu*, 920 F.3d 1362, 1369 (Fed. Cir. 2019); *Tyco Healthcare Grp. v. Ethicon Endo-Surgery, Inc.*, 774 F.3d 968, 975 (Fed. Cir. 2014)); 37 C.F.R. § 1.131(b) (2024)). “Inventor declarations submitted to antedate a reference must be corroborated, and corroboration is governed by a ‘rule of reason’ standard” requiring consideration of all pertinent evidence. *Id.* (citing *Perfect Surgical Techs., Inc. v. Olympus Am., Inc.*, 841 F.3d 1004, 1007–09 (Fed. Cir. 2016)).

In an *inter partes* review, “the petitioner bears the ultimate burden of persuasion on invalidity, which never shifts to the patent owner.” *Parus Holdings, Inc. v. Google, LLC*, 70 F.4th 1365, 1371 (Fed. Cir. 2023) (citing *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015)). “However, when a patent owner attempts to antedate an asserted prior art reference, the patent owner assumes a temporary burden of production.” *Id.* (citing *Dynamic Drinkware*, 70 F.4th at 1378; *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1376 (Fed. Cir. 2016)).

Petitioner contends that Zellweger is prior art under 35 U.S.C. § 102(e). Pet. 20. Zellweger was filed as U.S. Non-Provisional Application No. 09/353,433, on July 15, 1999. Ex. 1007, code (22). Zellweger claims priority to U.S. Provisional Application No. 60/095,811, filed August 4, 1998. *Id.* at code (60). The '720 patent was filed as U.S. Non-Provisional Application No. 09/513,340 on February 25, 2000, and does not claim priority to any earlier application. Ex. 1001 at codes (21, 22).

Because Zellweger is a patent with a filing date before the '720 patent's, Petitioner satisfies its initial burden to demonstrate that Zellweger is prior art under § 102(e). Pet. 20. The burden of production thus shifts to Patent Owner to demonstrate that Zellweger is not prior art.

Patent Owner argues that Zellweger is not prior art because he conceived of the claimed invention and reduced it to practice before Zellweger's filing date of July 15, 1999 (Ex. 1007, code (22)). Alternatively, Patent Owner argues that he conceived the invention before Zellweger's filing date and exercised reasonably continuous diligence from just before this date to actual or constructive reduction to practice. PO Resp. 18–21; Exs. 2001–2008.

Patent Owner contends that he conceived of the claimed invention as early as January of 1999. Ex. 2001 ¶ 45. His “vision” was for “a database management product that would be intuitive and flexible” which he came to call his “search-on-the-fly” system designed for use in his medical practice. *Id.* His intent was to provide a system permitting a user to search large amounts of data across various databases organized in various ways that would return all available results and truncate them for display on one page. *Id.* ¶ 46. He states that “[t]he truncation of the alpha-numeric spectrum

would then allow results to be reduced to a single-page view so that the extremes of the spectrum could be appreciated by the user.” *Id.*

After unsuccessful attempts to modify off-the-shelf software products to implement his “search-on-the-fly” concepts, Patent Owner “began efforts to design . . . a software tool in May 1999.” *Id.* ¶ 48. He “initially focused development on icon manipulation, faceted search, truncation, and related database tools.” *Id.* In August 1999, Patent Owner discussed his inventive concepts with Mr. Adriano Freire, a computer programmer, to “bring [his] inventive concepts to life” and “accomplish [his] intentions.” *Id.* ¶¶ 50–51. From September to December 1999, he “purchased computer hardware and related devices to execute the code [that] Mr. Freire was writing.” *Id.* ¶ 51.

In September 1999, Patent Owner decided that his software programs could be marketable and determined to seek patent protection for his invention. *Id.* ¶ 54. On October 14, 1999, Patent Owner formed a company, Virtual Logistix, Inc., “to produce and market the software products.” *Id.* ¶ 52. Also in October 1999, he engaged Dorsey & Whitney LLP to assist him in drafting a patent application for his invention. *Id.* ¶ 55. In December 1999, he met with two patent attorneys from Dorsey & Whitney LLP, where he demonstrated a prototype of his search-on-the-fly system which he had developed with Mr. Freire. *Id.* ¶¶ 56–58.

Patent Owner states that Dorsey & Whitney filed his first patent application, now the ’720 patent, on February 25, 2000, and that screenshots from the system he demonstrated to the patent attorneys were incorporated into the application from which the ’720 patent issued. *Id.* ¶ 60. He states that one such screenshot is Figure 10 of the ’720 patent. *Id.* (citing Ex. 2005).

For corroboration, Patent Owner relies on a declaration from Ms. De Bellis (Ex. 2002), sales receipts for computer equipment (Exs. 2005, 2006), a copy of Figure 10 of the '720 patent (Ex. 2007), and a copy of a letter (Ex. 2008) to his patent attorney enclosing a CD (compact disc) of the computer program he demonstrated, and a memorandum concerning his activities.

Petitioner argues that Patent Owner has not proven conception of the claimed subject matter prior to the '720 patent's filing date. Pet. Reply 4–8. Specifically, Petitioner argues that Patent Owner has not shown that his ideas were “sufficiently definite, permanent, or complete” such that they could constitute conception of the '720 patent's subject matter. *Id.* at 4–6 (citing Ex. 2001 ¶¶ 45–47, 49); *Kolcraft Enters., Inc. v. Graco Child.'s Prods., Inc.*, 927 F.3d 1320, 1324 (Fed. Cir. 2019); *Burroughs Wellcome Co. v. Barr Lab'ys, Inc.*, 40 F.3d 1223, 1229 (Fed. Cir. 1994); *Mahurkar v. C.R. Bard, Inc.*, 79 F.3d 1572, 1577 (Fed. Cir. 1996); *REG Synthetic Fuels, LLC v. Nestle Oil Oyj*, 841 F.3d 954, 962 (Fed. Cir. 2016)).

According to Petitioner, Patent Owner's description of his January 1999 “vision” is generic and lacked any claim charts or other documentation to establish conception, such as “conceptual drawings, invention disclosures, notes, flow charts, or anything else that provides insight into how the purportedly conceived database product was meant to operate.” *Id.* at 6–7.

Petitioner also criticizes Patent Owner's use of terminology such “panes,” “drill[ing] down,” and “roll[ing] and tumbl[ing]” without explaining how these terms relate to the claims of the '720 patent. *Id.* at 7 (citing Ex. 2001 ¶ 46). Petitioner argues that Patent Owner shows no evidence of 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 as recited in independent claims 1 and 3 of the ’720 patent. *Id.*

We agree with Petitioner’s assertions that Patent Owner has not shown conception of the noted claim language prior to Zellweger’s filing date. For example, claim 1’s limitation 1A requires “determining a database schema.” We find no mention of this in Patent Owner’s conception evidence.

Regarding the claimed “providing a list of the database fields” in claim 1’s limitation 1B and “generating a list of data fields” in claim 3’s limitation 3A, Patent Owner’s conception evidence has only one mention of “data fields” in the context of using existing database software. Ex. 2001 ¶ 20. We find no evidence, however, that this activity relates to conception for these claim limitations.

Claim 1’s limitation 1D recites “determining a quantity of entries in the selected database field” and claim 3’s limitation 3C recites “determining a first quantity indicative of a number of entries of the selected data field.” The closest conception evidence we find for these limitations is Patent Owner’s statement that he described a system to Ms. De Bellis that “would truncate search results” and “would display all of the results on one page.” Ex. 2001 ¶¶ 46–47. However, there are ways that these actions could be performed without determining the quantity of entries (e.g., grouping search results alphabetically by their first letters).

Accordingly, we find Patent Owner’s evidence insufficient to demonstrate conception for claim 1’s limitations 1A, 1B, and 1D, and claim

3's limitations 3A and 3C prior to Zellweger's filing date of July 15, 1999. Consequently, Zellweger is § 102(e) prior art to the '720 patent.

E. Ground 1: Obviousness over Cochran and Zellweger

We now address Petitioner's contention that the subject matter of claims 1–7, 15–19, and 27–30 would have been obvious over the combination of Cochran and Zellweger. Pet. 24–58; Pet. Reply 16–23. We also address Patent Owner's arguments for patentability for these claims. PO Resp. 5–11, 22–24; PO Sur-Reply 5. For reasons explained below, we determine that Petitioner has shown by a preponderance of the evidence that the claims challenged in this ground are unpatentable.

1. Cochran (Ex. 1005)

Cochran is titled “Apparatus and Method for Selecting Records from a Computer Database by Repeatedly Displaying Search Terms from Multiple List Identifiers before Either a List Identifier or a Search Term is Selected.” Ex. 1005, code (54).

Cochran discloses

A method for managing the presentation of search terms on a computer terminal or other display device so that large computer databases can be searched efficiently. Multiple lists of search terms, such as words, symbols or phrases, are displayed adjacent to list-identifiers (also referred to as index names or indexes). The search terms contained in the lists are only those terms that are actually available in the database. A search of the database is conducted based upon selected search terms from at least one of the multiple lists. The subset of

records identified by the search is used to form new lists of search terms that are then displayed on the display device.

Id. at code (57).

Cochran's Figure 4b is shown below.

FIG. 4b

The screenshot displays a window titled "Travel Search Database" with a subtitle "Travel Search Database - Selection Screen". The window contains several input fields and buttons. On the left, a list of identifiers 111 through 117 points to specific fields. On the right, a list of identifiers 214 through 217 points to pick boxes, and 314 through 317 points to search buttons. At the bottom, a status bar shows the number of results found and a set of control buttons.

Identifier	Field	Value	Search Button Identifier
111	1. Start of Travel:.....	January-March	
112	2. Number of People:	Disregard Occupancy	314
113	3. Location:.....	Within a Region, Atlantic States: DE,DC,MD,PA,NJ,VA,WV	
114	4. Lodging Type:.....	Hotel/Motel (214)	Search (314)
115	5. Lodging Name:.....	Airport Inn (215)	Search (315)
116	6. Amenities:.....	Outdoor Swimming (216)	Search (316)
117	7. Price:.....	Economy (217)	Search (317)

...Number Found: 1308

Buttons: View All (121), View One (122), Reset 4-7 (123), Start Over (124), ... Help ...

Figure 4b shows a “Travel Search Database – Selection Screen” for search of a travel database. *Id.* at 6:58–7:4, Fig. 4b. Search terms for field identifiers 111–113 have already been selected and cannot be changed without starting over. *Id.* at 12:44–53, Fig. 2 (step 48). As a result of the search, updated lists of search terms have been created for search identifiers 114–117. *Id.* at 12:54–56, Fig. 2 (step 34). Default search terms 214–217 are displayed in pick boxes 314–317 for the remaining four list identifiers 114–117 (“Lodging Type,” “Lodging Name,” “Amenities,” and “Price”). *Id.* at 12:56–59, Fig. 2 (step 36).

Cochran's Figure 4e is shown below.

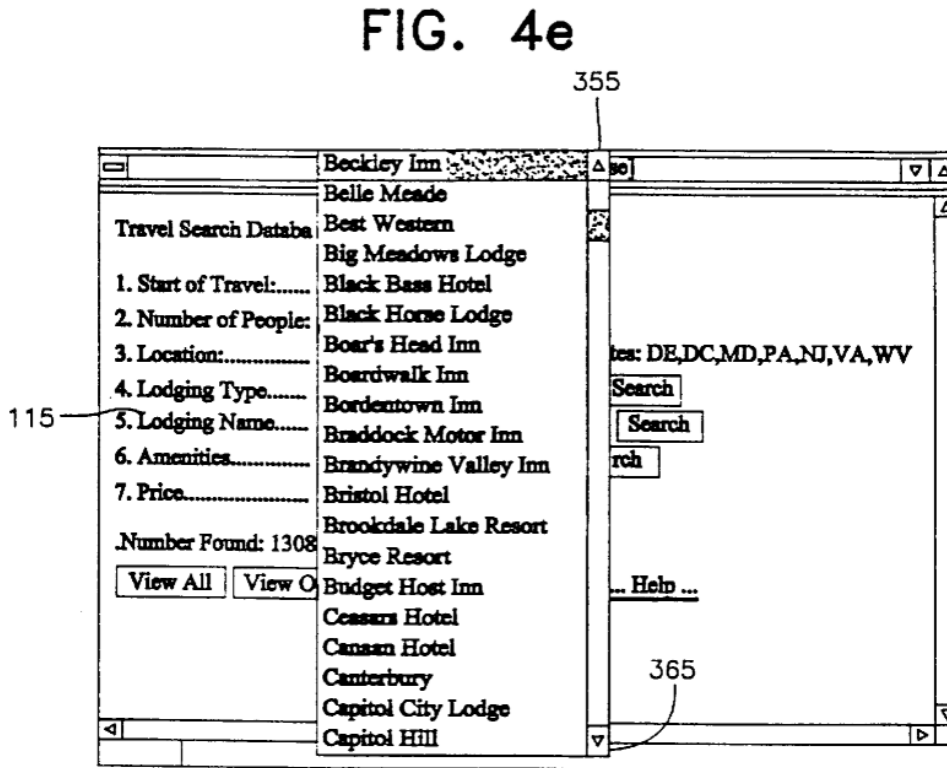


Figure 4e shows part of the list of search terms 215 available for list identifier 114 “Lodging Name.” *Id.* at 13:58–59. “Only a portion of the list is displayed at any given time since there are more Lodging Names in the subset than can fit on the display screen simultaneously.” *Id.* at 13:60–63.

2. *Zellweger (Ex. 1007)*

Zellweger is titled “Method and Apparatus for Generating a Tab List Menu in a Hierarchical Menu Structure.” Ex. 1007, code (54). Zellweger discloses the following:

The present invention discloses a menu authoring system that generates a tab list menu that links to a set of sublists which, previously, represented one long continuous list of menu items. With the present invention the menu developer has full control over how the original list is divided into intervals and how the tab menu list portray these divisions. Using an interactive

configuration window the developer selects the source for these divisions, an alphabet list or the content itself, and can display the tab list menu prior to making permanent changes to the menu structure. The menu developer is free to select any list in a menu structure as a candidate for a tab list menu. When the new tab list menu is generated the present invention links this menu to the prior incoming and outgoing list objects.

Id. at 2:30–43.

Zellweger discloses that a developer can select either an Alphabetical List or a Content List for display of a target list menu. *Id.* at 4:17–20. The developer can select the length of each tab and the maximum and minimum number of entries in each tab list menu. *Id.* at 4:21–31.

Zellweger's Figure 6b is shown below.

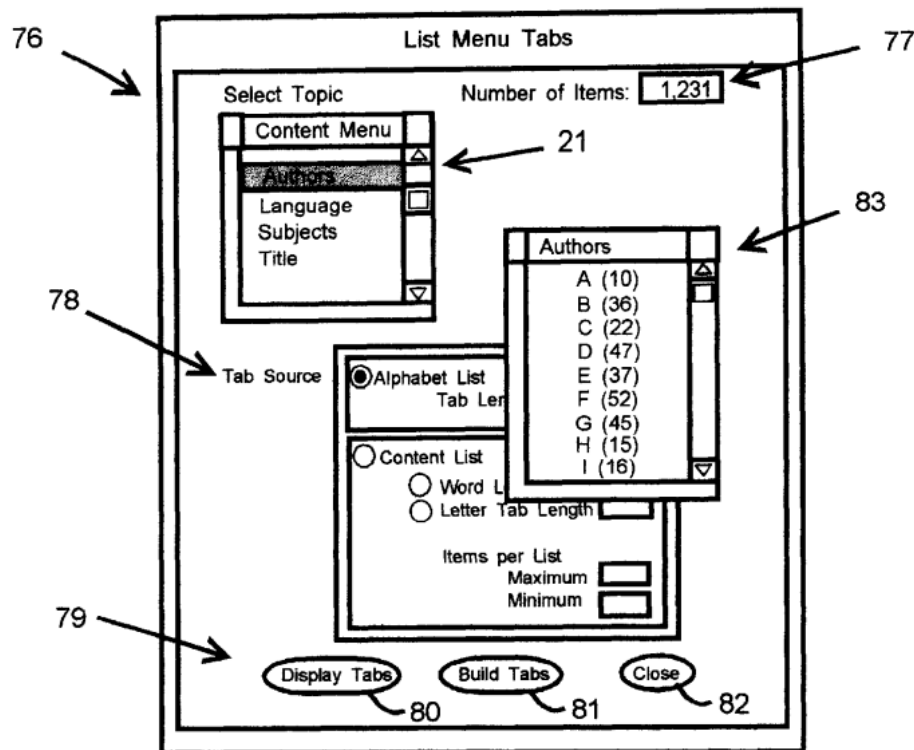


Fig. 6b

Figure 6b “depicts configuration window 76 after the Display Tabs button 80 was selected by the developer.” *Id.* at 4:36–37. In this example, configuration window 76 generates and displays a sample tab list menu 83 including an alphabet list source having a single letter with the number of elements associated with the alphabet letter interval. *Id.* at 4:36–44.

Zellweger’s Figure 7 is shown below.

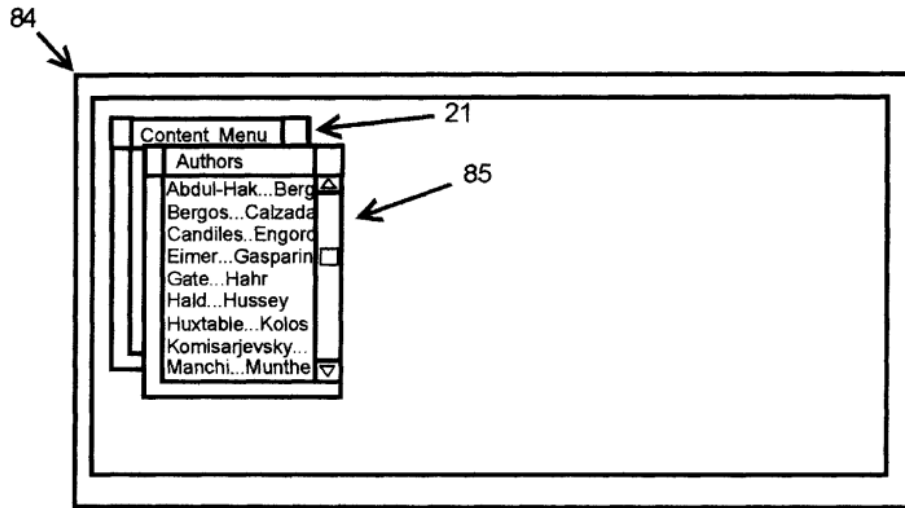


Fig. 7

Figure 7 shows window 84 with content menu 21 after a developer selected the Build Tabs button 81 in window 76 of Figure 6b. *Id.* at 4:45–46. Tab list menu 85 in window 84 was built using the authors content list with a word length. *Id.* at 4:46–48. Each tab entry in 85 depicts an interval using the author’s last name as the first and last elements (e.g., “Abdul-Hak” through “Berg”). *Id.* at 4:48–52.

3. Motivation to Combine Cochran and Zellweger

Petitioner contends that a POSITA would have been motivated to combine Cochran and Zellweger with a high expectation of success. Pet. 55–58 (citing Ex. 1003 ¶¶ 479–489).

Specifically, Petitioner contends that Cochran seeks to provide an efficient and user-friendly method to search computer databases, and recognizes that pick lists for searches may be voluminous and exceed the capacity of a pick box to display them simultaneously such that Cochran would benefit from improved navigation methods. Pet. 55–56 (citing Ex. 1005, 4:4–19, 10:58–65; Ex. 1003 ¶¶ 482–485).

Petitioner asserts that Zellweger sought to remedy the same problem of navigating long pick box lists, and argues that a POSITA would have looked to Zellweger’s Alphabet or Content Lists to replace Cochran’s scroll bars. *Id.* at 56–57 (citing Ex. 1003 ¶ 485). Petitioner contends that the combination is “nothing more than using one known method (Zellweger) to improve another known method (Cochran) according to the express teachings of Zellweger to yield predictable results.” *Id.* at 57.

Petitioner contends that Cochran and Zellweger are analogous because they are directed to the same field of accessing information in databases through graphical interfaces that make information more accessible, and are both implemented as computer software. *Id.* (citing Ex. 1005, code (57), 1:14–20, 4:2–57; Ex. 1007, code (57), 1:35–40, 2:30–43; Ex. 1003 ¶¶ 480–481).

Petitioner alleges that a POSITA would have had a high expectation of success because, among other reasons, altering Cochran to truncate entries using Zellweger’s Alphabet and Content List menus would require nothing more than routine programming. *Id.* at 57–58.

Patent Owner contends that, unlike the subject matter of the challenged claims of the ’720 patent, Cochran and Zellweger are not

“dynamic” or “search-on-the-fly” systems but require “preconfigured” menus, queries, pick boxes, and list identifiers. PO Resp. 5–11.

The word “dynamic” appears only in claim 6, and we will address Patent Owner’s contentions separately for that claim. For the remaining claims challenged in this ground, “dynamic,” “search-on-the-fly” and language precluding “preconfigured” does not appear in the claims. Consequently, Patent Owner’s “teach away” and motivation arguments are not supported by commensurate language in the claims. *See In re Self*, 671 F.2d 1344, 1348 (CCPA 1982) (limitations not appearing in the claims cannot be relied upon for patentability).

Petitioner has shown by a preponderance of the evidence that a POSITA would have been motivated to combine Cochran with Zellweger, which are analogous, to improve usability of Cochran’s pick boxes with a reasonable expectation of success notwithstanding Patent Owner’s arguments to the contrary. Pet. 55–58.

4. *Claim 1*

We proceed to discuss Petitioner’s contentions for the limitations of claim 1 in relation to the disclosures of Cochran and Zellweger, and Patent Owner’s arguments for patentability.

a) *Limitation 1PRE: Preamble*

The preamble of claim 1 recites “*A method implemented on a computer for searching databases, comprising:*”

Petitioner contends that Cochran discloses a method for managing presentation of search terms on a computer terminal to efficiently search large computer databases. Pet. 24 (citing Ex. 1005, code (57), 1:30–37, 4:10–12, Figs. 3a, 4a, 4b, 4d, 7b; Ex. 1003 ¶¶ 176–177).

Patent Owner does not dispute Petitioner's contentions for claim 1's preamble.

We find that Petitioner has shown by a preponderance of the evidence that Cochran discloses claim 1's preamble.⁶

b) Limitation 1.A: Determining a Database Schema

Limitation 1.A recites “*determining a database schema for a database, wherein the database includes database fields.*”

Petitioner contends that Cochran displays a list of available choices for searching a database from which the user can determine how the database is organized. Pet. 25 (citing Ex. 1005, 7:20–27, 11:38–48; Ex. 1003 ¶¶ 178–181). Petitioner contends that Cochran therefore “*determine[s] a database schema for a database*” as recited in the claim. *Id.*

Petitioner further contends that Cochran's database includes records each with multiple fields (also referred to as indexes or list identifiers) containing data or information. *Id.* at 24 (citing Ex. 1005, 1:15–16, 1:21–29). Petitioner thus contends that Cochran discloses that “*the database includes database fields*” as claimed.

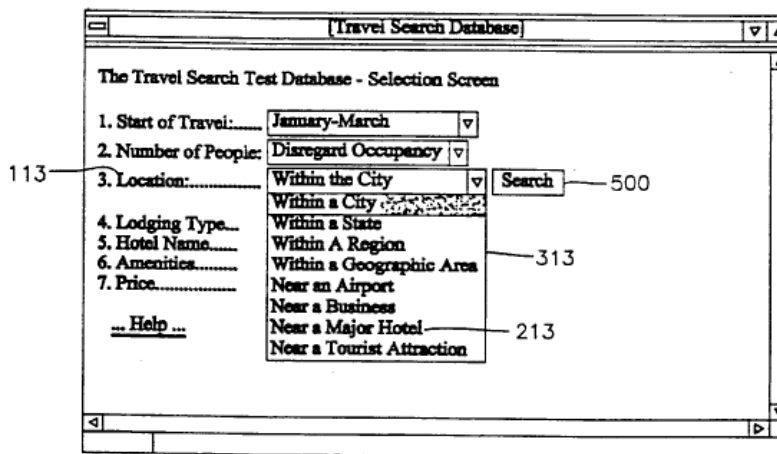
Patent Owner argues that Cochran has no search engine and thus cannot present a user with a dynamically-determined list of database fields. PO Resp. 6–7, 22–23. Patent Owner asserts that Zellweger similarly provides a content menu with a list of statically-determined categories, such as authors and subjects. *Id.* at 23.

⁶ Because Petitioner has shown that Cochran discloses the preamble, we do not decide whether the preamble is limiting. *See Catalina Mrkt'g Int'l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801 (Fed. Cir. 2002) (preamble may constitute a claim limitation under some circumstances).

Petitioner replies that Cochran is similar to a '720 patent embodiment that incorporates a search engine in the structure of one or more databases. Pet. Reply 16–17 (citing Ex. 1001, 4:15–21, 4:60–64, 5:4–6). According to Petitioner, Cochran’s system assembles and transmits to a user a collection of “list identifiers” and “search terms” that correspond to a database’s organizational scheme. *Id.* at 17–18 (citing Pet. 24–25; Ex. 1005, 1:21–30, 5:52–56, 7:9–21, 11:38–48, Fig. 2; Ex. 1034 ¶¶ 7–17).

We agree with Petitioner that Cochran discloses limitation 1.A. Pet. 24–25; Pet. Reply 17–18. As Petitioner contends, “Cochran determines the database schema and then presents the user with choices dictated by that schema.” Pet. 24 (citing Ex. 1005, 7:20–27). For example, Cochran’s Figure 3d is shown below.

FIG. 3d



Cochran’s Figure 3d displays the list of available fields for search, and reflects determination of the database schema. Ex. 1005, 11:38–48.

Patent Owner’s arguments that limitation 1.A requires “dynamic” and not “preconfigured” or “statically-determined” schema is unavailing because the claim language does not impose such restriction. PO Resp. 22–23; Pet. Reply 16–18; § II.C.1; *see Self, supra*.

We find that Petitioner has shown by a preponderance of the evidence that Cochran discloses claim 1's limitation 1.A.

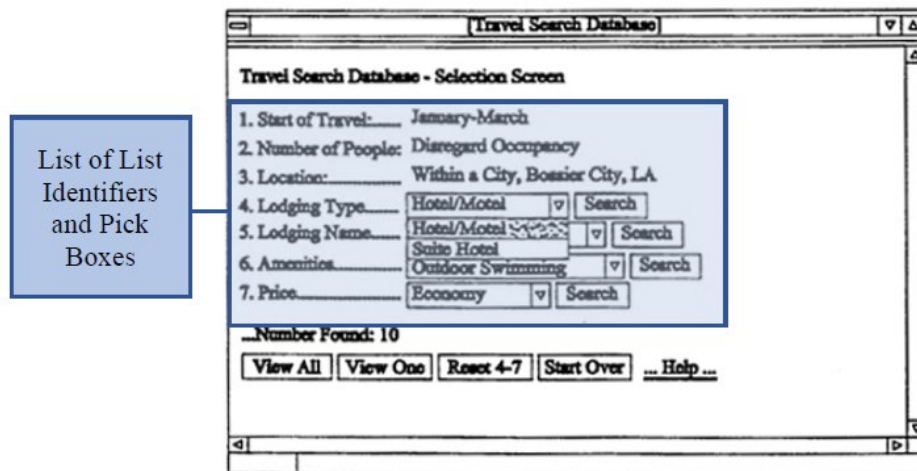
c) Limitation 1.B: Providing a List of Database Fields

Limitation 1.B recites “*providing a list of the database fields, wherein the list includes a descriptor indicating a data category.*”

Petitioner contends that Cochran discloses list identifiers and pick boxes (“*providing a list of database fields*”). Pet. 25 (citing Ex. 1005, 1:21–29, 7:19–47; Ex. 1003 ¶¶ 182–184).

Petitioner further contends that Cochran’s “list identifiers” identify categories of information in the database to be searched (“*the list includes a descriptor indicating a data category*”). *Id.* at 25–26 (citing Ex. 1005, code (57), 7:13–47, 11:22–28, Figs. 3a–4b, 4d–9d, 7b).

To illustrate its contentions, Petitioner provides the following annotated version of Cochran’s Figure 3d:



Pet. 26. Petitioner’s annotated version of Cochran’s Figure 3d shows a display of a list of database fields (list identifiers and pick boxes) that

includes a descriptor (“Location,” “Lodging Type,” “Lodging Name,” etc.) indicating a data category.

Patent Owner argues that Cochran does not provide a list of database fields coincident with execution of a search. PO Resp. 6–7 (citing Ex. 1005, 10:66–11:8; Ex. 1003 ¶¶ 179, 184–185), 22–23. As Petitioner argues, no such requirement appears in the language of limitation 1.B. Thus, Patent Owner’s argument is unavailing. *See* § II.A.2; *see Self, supra*.

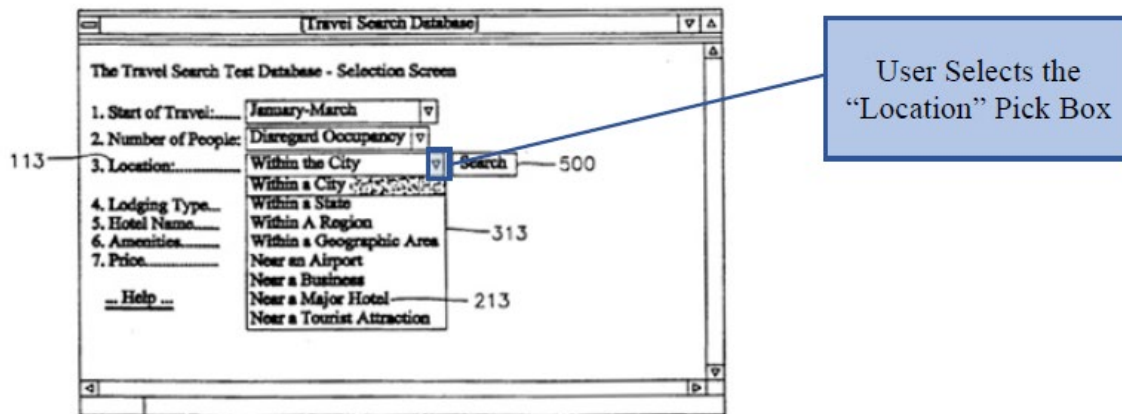
We find that Petitioner has shown by a preponderance of the evidence that Cochran discloses limitation 1.B of claim 1.

d) Limitation 1.C: Receiving a Search Selection

Limitation 1.C recites “*receiving a search selection for a database field on the provided list of the database fields.*”

Petitioner contends that Cochran discloses that each listed database field (category) includes an associated pick box that the user can click (“*receiving a search selection for a database field*” from “*the provided list of database fields*”). Pet. 26–27 (citing Ex. 1005, 1:30–47, 6:31–39, 7:9–19, 8:45–47, 9:60–10:4, Figs. 3a–c, 3d (annotated), 4a–4b, 4d–9d; Ex. 1003 ¶¶ 185–187).

Petitioner provides an annotated version of Cochran’s Figure 3d shown below:



Pet. 27. Petitioner’s annotated version of Cochran’s Figure 3d shows that the user’s selection of the “Location” pick box causes it to expand to display search terms for the associated database field. Pet. 26 (citing Ex. 1005, 9:60–10:4).

Patent Owner does not dispute Petitioner’s contentions for limitation 1.C.

We find that Petitioner has shown by a preponderance of the evidence that Cochran discloses claim 1’s limitation 1.C.

e) Limitation 1.D: Determining a Quantity of Entries

Limitation 1.D recites “*determining a quantity of entries in the selected database field.*”

Petitioner contends that Cochran determines the number of search terms (“*determining a quantity of entries*”) to display when a user selects a pick box (“*in the selected database field*”). Pet. 27–28 (citing Ex. 1003 ¶¶ 188–193, 201).

For example, Petitioner argues that Cochran determines whether it is necessary to add a scroll bar to display items when a user selects a field, and therefore must determine the number of entries for that field. *Id.* at 27–28 (citing Ex. 1005, 10:57–65, Figs. 3–9; Ex. 1003 ¶¶ 188–193, 201).

As another example, Petitioner notes that when a user selects a database field such as “Authors” in Zellweger’s system, the computer determines that there are “1,231” entries for this field. *Id.* at 28–29 (citing Ex. 1007, 2:30–35, 4:7–16, Fig. 6a (annotated); Ex. 1003 ¶¶ 195–196).

Furthermore, Petitioner asserts that Zellweger’s Authors list shows the first letter of the author’s name and displays how many authors have that letter. *Id.* at 29 (citing Ex. 1007, 4:17–35; Ex. 1003 ¶¶ 197–199).

In addition, Petitioner avers that Zellweger’s Content List permits a user to set a maximum and minimum number of items per list, which would require determining the quantity of entries to establish whether the set limits are satisfied. Pet. 29–31 (citing Ex. 1005, 2:30–43, 4:26–31, Fig. 6a (annotated); Ex. 1007, 4:45–53, Fig. 7; Ex. 1003 ¶¶ 198–201).

To the extent that Patent Owner argues that Cochran in view of Zellweger does not disclose or suggest determining a quantity of entries as recited in limitation 1.D, we disagree. PO Resp. 23. Petitioner shows that Cochran and Zellweger each disclose this limitation for the reasons Petitioner mentions. Pet. 27–31; Pet. Reply 21.

We find that Petitioner has demonstrated by a preponderance of the evidence that Cochran in view of Zellweger discloses claim 1’s limitation 1.D.

f) Limitation 1.E: Truncating and Displaying Data If Quantity Exceeded

Limitation 1.E recites “*if the quantity exceed[s] a specified amount, truncating data, and displaying the truncated data wherein the truncating reduces characters in one or more entries in the selected database field and*

the truncated data represents each of the entries in the selected database field.”

Petitioner contends that Cochran adjusts its display based on the quantity of results in the selected list by using a scroll bar as necessary. Pet. 31 (citing Ex. 1007, 10:48–65, 13:58–14:7, 14:45–49, 15:4–11, 16:15–21; Ex. 1003 ¶ 203).

In addition, Petitioner asserts that Zellweger discloses “*truncating*” entries in a list by “*reduc[ing] characters in one or more entries of the selected database field*” and displaying them grouped into intervals using Alphabet and Content Lists (“*displaying the truncated data*”). *Id.* (citing Pet. § XI.A.1.e; Ex. 1003 ¶¶ 204–212). *Id.* at 31–34 (citing Ex. 1007, 4:36–53, Figs. 6a, 6b, 7 (annotated); Ex. 1003 ¶¶ 204–209).

Petitioner contends that it would have been obvious to use any of the techniques mentioned in Cochran and Zellweger (scroll bar, Alphabet List, ContentList, etc.) to truncate lists and their entries. *Id.* (citing Ex. 1003 ¶¶ 210–212). Petitioner argues that the references together teach truncating “*if the quantity exceed[s] a specified amount*” as claimed. *Id.* (citing Ex. 1007, 4:26–35, Figs. 6a, 7; Pet. § XI.A.1.e).

Patent Owner argues that Cochran in view of Zellweger does not display all entries for the selected database field. PO Resp. 23; PO Sur-Reply 5. However, we agree with Petitioner that limitation 1.E does not require *display* of all entries, only that they be “*represented*.” Cochran’s scroll bar represents all entries because the scroll bar can be manipulated as necessary to show all entries. Also, Zellweger’s Alphabet List and Content List truncate the list into intervals which represent all author names. *See, e.g.,* Ex. 1007, Figs. 6a, 6b, 7.

Patent Owner reiterates its arguments that limitation 1.E requires computer-determined “dynamic” lists whereas Cochran’s and Zellweger’s lists are “static” and “preconfigured” through human involvement. PO Resp. 23; PO Sur-Reply 5. We disagree with Patent Owner’s arguments because no commensurate language appears in limitation 1.E or elsewhere in the claim. *See* § II.A.5; *see Self, supra*.

Petitioner has shown by a preponderance of the evidence that Cochran in view of Zellweger discloses claim 1’s limitation 1.E.

g) *Limitation 1.F: Displaying Contents If a Specified Quantity Not Exceeded*

Limitation 1.F recites “*if the quantity exceed[s] a specified amount, truncating data, and displaying the truncated data wherein the truncating reduces characters in one or more entries in the selected database field and the truncated data represents each of the entries in the selected database field.*”

Petitioner contends that, in Cochran in view of Zellweger, it would have been obvious to display the list without truncation (“*displaying contents of the database field*”) when the list does *not* exceed that specified amount (“*if the quantity does not exceed the specified amount*”). Pet. 34–35 (citing Ex. 1005, 11:22–48, 15:64–66, 16:15–21, Fig. 7c (annotated); Ex. 1003 ¶¶ 213–217).

Patent Owner does not dispute Petitioner’s contentions for limitation 1.F.

We find that Petitioner has shown by a preponderance of the evidence that Cochran in view of Zellweger discloses claim 1’s limitation 1.F.

h) Conclusion for Claim 1

Petitioner shows by a preponderance of the evidence that a POSITA would have been motivated to combine Cochran and Zellweger, which are analogous, with a reasonable expectation of success, and that each limitation of claim 1 is taught or at least suggested by the combination of Cochran and Zellweger notwithstanding Patent Owner's arguments. *See* §§ II.E.3 and II.E.4.a–g, *supra*.

Accordingly, we determine that Petitioner has shown by a preponderance of the evidence that claim 1 is unpatentable as obvious over Cochran in view of Zellweger.

5. Claim 2

Claim 2 depends from claim 1 and “*further compris[es] providing a key word search.*”

Petitioner asserts that a POSITA would have understood that selecting Cochran's search terms in the pick boxes constitutes providing “key words” for searching the database.” Pet. 35 (citing Ex. 1005, 1:30–37, 2:25–28, 9:18–22, 10:13–18; Ex. 1003 ¶ 218).

Patent Owner does not dispute Petitioner's contentions specific to claim 2.

We determine that Petitioner has demonstrated by a preponderance of the evidence that claim 2 is unpatentable as obvious over Cochran in view of Zellweger.

6. Claim 3

We address Petitioner's and Patent Owner's contentions for independent claim 3 below. Pet. 36–40; Pet. Reply 22; PO Resp. 23–24; PO Sur-Reply 5.

a) Limitation 3.PRE: Preamble

The preamble of claim 3 recites “*A method implemented on a computer for searching a database, comprising.*”

For the reasons stated for claim 1, Petitioner contends that Cochran in view of Zellweger discloses claim 3’s preamble. Pet. 36 (citing *id.* § XI.A.1.a (discussing limitation 1.PRE of claim 1); Ex. 1003 ¶ 219).

Patent Owner does not dispute Petitioner’s contention.

We find that Petitioner has shown by a preponderance of the evidence that the preamble of claim 3 is disclosed by Cochran in view of Zellweger.⁷

b) Limitation 3.A: Generating a List

Limitation 3.A of claim 3 recites “*generating a list of data fields.*”

For the reasons stated for claim 1, Petitioner contends that Cochran in view of Zellweger discloses this limitation. Pet. 36 (citing *id.* § XI.A.1.c (discussing limitation 1.B of claim 1); Ex. 1003 ¶ 220).

Patent Owner argues that limitation 3.A is not disclosed or suggested by the combination of Cochran and Zellweger for the same reasons stated for claim 1. PO Resp. 23–24. For the reasons explained for claim 1, we do not agree with Patent Owner’s argument. *See* § II.A.2, *supra*.

Accordingly, we find that Petitioner has shown by a preponderance of the evidence that limitation 3.A of claim 3 is disclosed or at least suggested by Cochran in view of Zellweger.

⁷ Because Petitioner shows sufficiently that the preamble is disclosed by the asserted prior art references, we do not reach the issue of whether the preamble is limiting. *See* footnote 5.

c) Limitation 3.B: Receiving a Data Field Selection

Limitation 3.B of claim 3 recites “*receiving a first data field selection from the list of data fields.*”

For the reasons stated for claim 1, Petitioner contends that Cochran in view of Zellweger discloses this limitation. Pet. 36 (citing *id.* § XI.A.1.d (discussing limitation 1.C of claim 1); Ex. 1003 ¶¶ 221–222). Petitioner contends that while claim 1 and claim 3 use different language, they require the same thing. *Id.* (emphasis added) (asserting correspondence between “*search selection*” of claim 1 and “*first data field selection*” of claim 3, and “*for a database field on the provided list of the database fields*” of claim 1 and “*from the list of data fields*” in claim 3).

Patent Owner does not dispute Petitioner’s contentions.

We find that Petitioner has shown by a preponderance of the evidence that claim 3’s limitation 3.B is disclosed or at least suggested by Cochran in view of Zellweger.

d) Limitation 3.C: Determining a First Quantity

Limitation 3.C of claim 3 recites “*determining a first quantity indicative of a number of entries of the selected data field.*”

For the reasons stated for claim 1, Petitioner contends that Cochran in view of Zellweger discloses this limitation. Pet. 37 (citing *id.* § XI.A.1.e (discussing claim 1’s limitation 1.D); Ex. 1003 ¶¶ 223–224). Petitioner asserts that although claim 1 and claim 3 use different language, they require the same thing. *Id.* (asserting correspondence between “*quantity of entries*” in claim 1 and “*first quantity indicative of a number of entries*” in claim 3; and “*in the selected database field*” of claim 1 and “*of the selected data field*” in claim 3).

Patent Owner presents the same arguments for limitation 3.C as it did for limitation 1.D, which we determine unavailing for the explained reasons. *See* § II.E.4.e, *supra*.

We find that Petitioner has shown by a preponderance of the evidence that claim 3’s limitation 3.C is disclosed or at least suggested by Cochran in view of Zellweger.

e) *Limitation 3.D: Reducing Size of Data if First Quantity Exceeds Specified Limit*

Limitation 3.D of claim 3 recites “*if the first quantity exceeds a specified limit, reducing a size of data to be displayed from the selected data field wherein the reducing reduces characters in one or more entries in the selected data field and the size-reduced data represents each of the entries in the selected field.*”

For the reasons stated for claim 1 and limitation 3.E *infra*, Petitioner contends that Cochran in view of Zellweger discloses this limitation. Pet. 37–38 (citing *id.* § XI.A.1.e (discussing claim 1’s limitation 1.E); and Pet. § XI.A.3.f (discussing claim 3’s limitation 3.E); Ex. 1003 ¶¶ 225–227). Petitioner asserts that although claim 1 and claim 3 use different language, they require the same thing. *Id.* at 37–38 (asserting correspondence between “*quantity*” of claim 1 and “*first quantity*” of claim 3, “*specified amount*” of claim 1 and “*specified limit*” of claim 3, “*truncating data*” of claim 1 and “*reducing a size of data*” of claim 3, “*the truncating*” of claim 1 and “*the reducing*” of claim 3, the “*database field*” of claim 1 and the “*data field*” of claim 3, the “*truncated data*” of claim 1 and the “*size-reduced data*” of

claim 3, and the “*selected database field*” of claim 1 and “*selected field*” of claim 3).⁸

Patent Owner relies on the same arguments for limitation 3.D as presented for limitation 1.E, which we determine to be unavailing. *See* § II.E.4.f, *supra*.

We find that Petitioner has shown by a preponderance of the evidence that claim 3’s limitation 3.D is disclosed by Cochran in view of Zellweger.

f) Limitation 3.E: Displaying Data from the Selected Data Field

Limitation 3.E of claim 3 recites “*displaying data from the selected data field*.”

For the reasons stated for claim 1, Petitioner contends that Cochran in view of Zellweger discloses this limitation. Pet. 38–40 (citing *id.* § XI.A.1.e (discussing limitation 1.D of claim 1) and § XI.A.1.f (discussing limitation 1.E of claim 1) (showing how the combined system “*display[s] data from the selected data field*”); Ex. 1003 ¶¶ 228–234). Petitioner contends that “Cochran discloses displaying search terms (“*displaying data*”) in a user-selected pick box (“*from the selected data field*”). *Id.* at 38–39 (citing Ex. 1005, Fig. 7c (annotated)). Petitioner further asserts that Zellweger discloses displaying the entries (“*displaying data*”) organized in the Alphabet List or Content List for the selected topic (“*from the selected data*

⁸ Petitioner contends that claim 3 contains two terms that do not have antecedent basis: (1) “selected field” and (2) “date.” Petitioner assumes that (1) “selected field” refers to “the selected data field” and (2) “date” is read as “data.” *Id.* at 38 (citing Ex. 1003 ¶ 227). We agree with Petitioner’s assumptions.

field”). *Id.* at 39–40 (citing Ex. 1007, 3:66–4:31, Fig. 6b (annotated), Fig. 7).

Patent Owner does not dispute Petitioner’s contentions for limitation 3.E.

We find that Petitioner has shown by a preponderance of the evidence that limitation 3.E is disclosed by Cochran in view of Zellweger for the reasons explained for limitations 1.D and 1.E. *See* §§ II.E.4.e–f, *supra*.

g) Conclusion for Claim 3

Petitioner has shown by a preponderance of the evidence that a POSITA would have been motivated to combine Cochran and Zellweger with a reasonable expectation of success, and that each limitation of claim 3 is taught or at least suggested by the combination of Cochran and Zellweger notwithstanding Patent Owner’s arguments. *See* §§ II.E.3 and II.E.6.a–f, *supra*.

Accordingly, we determine that Petitioner has demonstrated that claim 3 is unpatentable as obvious over Cochran in view of Zellweger.

7. Claim 4

Claim 4 depends from claim 3 and recites “*wherein the specified limit is fixed.*”

Petitioner asserts that Zellweger permits a user to specify minimum or maximum amounts of items to be displayed in its Alphabet Lists and Content Lists, such that the “*specified limit is fixed*” when the user sets the minimum items per list and does not change it. Pet. 40 (citing Ex. 1007, code (57), 2:30–43, 4:26–52, Fig. 6a; Ex. 1003 ¶¶ 235–237).

Patent Owner does not dispute Petitioner’s contentions specific to claim 4.

We find that Petitioner has shown by a preponderance of the evidence that claim 4 is unpatentable as obvious over Cochran in view of Zellweger.

8. *Claim 5*

Claim 5 depends from claim 3 and recites “*wherein the specified limit is variable.*”

Petitioner states that “Cochran teaches that the specified limit may be based on the size of the screen, which is variable.” Pet. 41 (citing *id.* § XI.A.1.f; Ex. 1003 ¶ 239). Petitioner further contends that Zellweger allows the minimum number of items per list to be changed at will such that it is “*variable.*” Pet. 41 (emphasis added) (citing Ex. 1003 ¶¶ 238–239).

Patent Owner does not dispute Petitioner’s contentions specific to claim 5.

We find that Petitioner has shown by a preponderance of the evidence that the subject matter of claim 5 is unpatentable as obvious over Cochran in view of Zellweger.

9. *Claim 6*

Claim 6 depends from claim 3 and recites “*wherein the data are displayed on a terminal, and wherein the specified limit is determined dynamically, based on a characteristic of the terminal.*”

Petitioner contends that Cochran discloses determining how many items will fit on a display screen simultaneously (“*data are displayed on a terminal*”), which depends on the terminal’s display capabilities (“*wherein the specified limit is determined dynamically, based on a characteristic of the terminal*”). Pet. 41 (citing *id.* §§ XI.A.1.e–f; Ex. 1003 ¶¶ 240–244).

Patent Owner argues that Cochran’s use of a scroll bar added to a pick list proves that Cochran does not determine “the specified limit

dynamically.” PO Resp. 24. Patent Owner asserts that, “[i]n claim 6, determining the specified limit dynamically based on a characteristic of the terminal is used to reduce the data displayed so that the data will fit on the terminal.” *Id.*

Petitioner contends that its expert, Dr. Zadok, explained that Cochran’s determination of whether a scroll bar is needed depends on the number of results to be displayed, and the display size. Pet. Reply 22–23 (citing Ex. 1005, 10:57–60; Ex. 1003 ¶¶ 243–244). Petitioner contends that a smaller display size requires a scroll bar at a lower limit whereas a larger display size requires a scroll bar at a higher limit. *Id.* at 23.

Patent Owner does not respond to Petitioner’s Reply contentions for claim 6.

On this record, we agree with Petitioner that the determination of whether a scroll bar is necessary to display entries depends on the number of entries in the selected data field and the size of the display, and thus would be made dynamically. Ex. 1003 ¶¶ 243–244. As there is no dispute that display size is a characteristic of the terminal (Tr. 54:17–19), Petitioner shows by a preponderance of the evidence that the combination of Cochran and Zellweger discloses claim 6.

We determine that Petitioner has shown by a preponderance of the evidence that the subject matter of claim 6 is unpatentable as obvious over Cochran in view of Zellweger.

10. Claim 7

Claim 7 recites “*wherein the specified limit is a user-determined limit.*”

For reasons explained with respect to claims 4 and 5, Petitioner asserts that Zellweger discloses that a user can specify minimum and maximum limits for its Content List such that they are “*user-determined*.” Pet. 42 (citing *id.* §§ XI.A.4–5; Ex. 1007, 4:26–31; Ex. 1003 ¶ 245).

Patent Owner does not dispute Petitioner’s contentions specific to claim 7.

We determine that Petitioner has shown by a preponderance of the evidence that the subject matter of claim 7 is unpatentable as obvious over Cochran in view of Zellweger.

11. Claim 15

Claim 15 depends from claim 3. Petitioner addresses the claim in two parts referred to as limitation 15.A and limitation 15.B.

a) Limitation 15.A: Receiving a First Constraint

Limitation 15.A of claim 15 recites “*receiving a first constraint, wherein the first constrain[t] is related to a data element in a data field.*”

Petitioner alleges that Cochran discloses that a user may select a search term (“*receiving a first constraint*”), and that each search term is “*related to*” a corresponding “*data element in a data field.*” Pet. 42 (citing *id.* §§ XI.A.1.d and XI.A.3.c). Petitioner contends that a POSITA would have understood that the selected search term is a “*constraint*” because it narrows the resulting search. *Id.* (citing Ex. 1005, code (57), 4:2–9, 4:29–35, 8:45–65, 12:44–65, 14:13–15:16, Figs. 4b, 4d–4g, 5b–5f; Ex. 1003 ¶¶ 246–249).

Patent Owner does not dispute Petitioner’s contentions specific to limitation 15.A.

We find that Petitioner has shown by a preponderance of the evidence that Cochran discloses claim 15's limitation 15.A.

b) Limitation 15.B: Receiving One or More Subsequent Restraints

Limitation 15.B of claim 15 recites “*receiving one or more subsequent constraints, wherein search results are generated based on a combination of the first and the one or more subsequent constraints.*”

Petitioner asserts that Cochran receives “*one or more subsequent constraints*” when a user selects multiple or additional search terms. Pet. 43 (citing *id.* § XI.A.8.a; Ex. 1005, 16:9–17:13; Ex. 1003 ¶ 250).

Petitioner further contends that Cochran discloses that results are “*generated based on a combination of the first*” and “*subsequent constraints*” by applying selected search terms in combination to arrive at a narrowed list of options in other pick boxes. *Id.* (citing Ex. 1005, 12:66–13:3, 16:38–17:13, Figs. 8a–9d; Ex. 1003 ¶¶ 251–254).

Patent Owner does not dispute Petitioner's contentions specific to limitation 15.B.

We find that Petitioner has shown by a preponderance of the evidence that Cochran discloses claim 15's limitation 15.B.

c) Conclusion for Claim 15

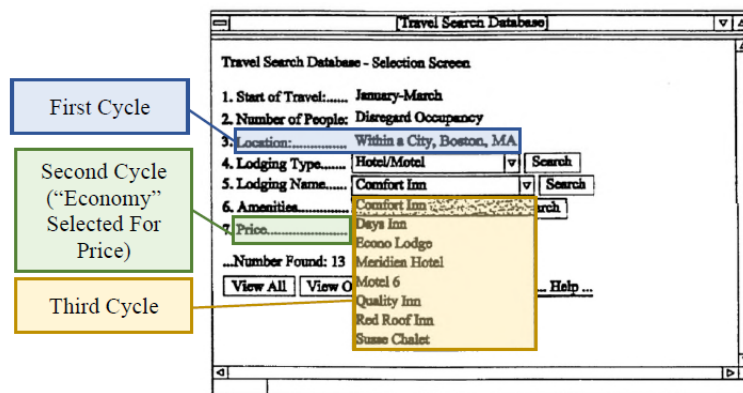
We determine that Petitioner has shown by a preponderance of the evidence that the subject matter of claim 15 is unpatentable as obvious over Cochran in view of Zellweger.

12. Claim 16

Claim 16 depends from claim 3 and recites “*wherein each display of data comprises a search cycle, and further comprising receiving a refresh command, the refresh command resetting all search cycles.*”

Petitioner contends that “Cochran allows a user to select several search terms, where each selection causes the other pick box search terms to be updated (“*each display of data comprises a search cycle*”).” Pet. 43–44 (citing *id.* §§ XI.A.8.a–b (discussing claim 15); Ex. 1005, 8:45–65; Ex. 1003 ¶¶ 255–265).

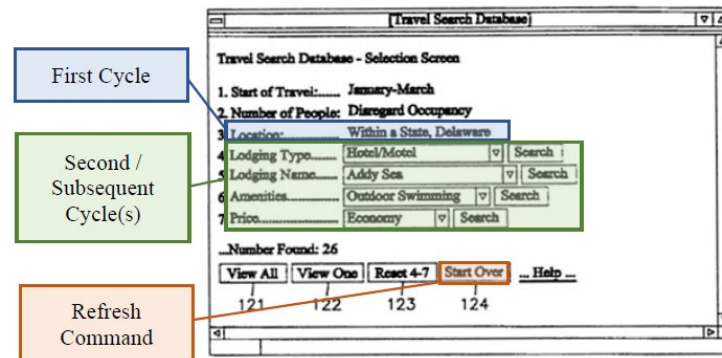
To illustrate this feature, Petitioner provides the following annotated version of Cochran’s Figure 9c:



Pet. 44. Petitioner annotates Cochran’s Figure 9c above to show multiple “*search cycles.*” *Id.* at 44 (citing Ex. 1005, code (57), 12:66–13:13, 14:13–43, 16:39–46).

Petitioner further contends that a “user can issue a command by clicking the ‘Start Over’ button that resets all pick box search terms selections (“*receiving a refresh command, the refresh command resetting all search cycles*”).” *Id.* at 44–45 (citing Ex. 1005, 13:19–26, Fig. 5b (annotated); Ex. 1003 ¶¶ 266–269)).

To show this feature, Petitioner provides the following annotated version of Cochran's Figure 5b:



Petitioner's annotated version of Cochran's Figure 5b above shows "[s]tart [o]ver" button 124 to reset all pick box search terms. Pet. 45.

Patent Owner does not dispute Petitioner's contentions specific to claim 16.

We determine that Petitioner has shown by a preponderance of the evidence that the subject matter of claim 16 is unpatentable as obvious over Cochran in view of Zellweger.

13. Claim 17

Claim 17 depends from claim 3 and recites that the method "*further compris[es] displaying the list of data fields and a representation of the selected data field, wherein the representation of the selected data field comprises one or more elements from the selected data field.*"

Petitioner states "Cochran displays a set of list items and pick boxes (*"displaying the list of data fields and a representation of the selected data field"*), and also displays the search terms or elements underlying any selected pick box (*"wherein the representation of the selected data field comprises one or more elements from the selected data field"*). Pet. 45–46 (citing *id.* §§ XI.A.1.d–e, XI.A.3.b; Ex. 1005, 7:36–47, 10:13–19, 10:43–

11:65 Ex. 1005, Fig. 3d (annotated), Fig. 5d (annotated); Ex. 1003 ¶¶ 270–274).

Patent Owner does not dispute Petitioner’s contentions specific to claim 17.

We determine that Petitioner has demonstrated by a preponderance of the evidence that the subject matter of claim 17 is unpatentable as obvious over Cochran in view of Zellweger.

14. Claim 18

Claim 18 depends from claim 3 and recites “*wherein the method comprises executing a plurality of search cycles, each search cycle of the plurality of search cycles providing a search result list comprising selected data elements from the data base.*”

Petitioner contends that “Cochran allows a user to select from multiple pick boxes (“*executing a plurality of search cycles*”) wherein each pick box shows a list of search terms (“*each search cycle of the plurality of search cycles providing a search result list comprising selected data elements from the data base*”).” Pet. 47 (citing *id.* § XI.A.9 (discussing claim 16); Ex. 1005, code (57), 4:29–35, 8:45–64, 10:66–11:21, 12:27–43, 13:50–57, 14:13–37, 14:64–66, Figs. 3b, 3c, Figs. 4a, 4d (annotated); Ex. 1003 ¶¶ 275–286).

Patent Owner does not dispute Petitioner’s contentions specific to claim 18.

We determine that Petitioner has demonstrated by a preponderance of the evidence that the subject matter of claim 18 is unpatentable as obvious over Cochran in view of Zellweger.

15. *Claim 19*

Claim 19 depends from claim 18 and “*further compris[es] resetting one or more search cycles of the plurality of search cycles.*”

Petitioner contends that Cochran discloses a multi-cycle search process where a user selects search terms and can reset part or all of the search (“*resetting one or more search cycles of the plurality of search cycles*”) using the ‘Reset 4-7’ or ‘Start Over’ buttons.” Pet. 49 (citing Ex. 1005, code (57), 13:14–26, Fig. 5b; Ex. 1003 ¶¶ 287–291).

Patent Owner does not dispute Petitioner’s contentions specific to claim 19.

We determine that Petitioner has demonstrated by a preponderance of the evidence that the subject matter of claim 19 is unpatentable as obvious over Cochran in view of Zellweger.

16. *Claim 20*

Claim 20 depends from claim 3. Petitioner addresses this claim in three parts referred to as limitations 20.A to 20.C. Pet. 49–53.

a) *Limitation 20.A*

Limitation 20A recites that claim 3 “*further compris[es] determining a schema of the database.*”

Petitioner contends that “Cochran determines a schema of the database.” Pet. 49 (citing *id.* § XI.A.1.b; Ex. 1003 ¶ 292).

b) *Limitation 20.B*

Limitation 20.B recites “*comparing the determined schema to a capability of a terminal for displaying the data.*”

Petitioner contends that Cochran displays a list of labels and their accompanying pick boxes (“*the determined schema*”).” Pet. 50 (citing *id.*

§§ XI.A.1.c–e, XI.A.3.b, f; Ex. 1003 ¶¶ 293–302). Petitioner further asserts that because Cochran contemplates use of “a computer terminal or other display device,” Cochran would need to accommodate the various display capabilities of these devices. *Id.* (citing Ex. 1005, code (57), 4:10–15, 6:11–12, Fig. 1).

Petitioner argues that because Cochran determines whether to include a scroll bar on its display, “Cochran obviously ‘*compare[s]*’ how many labels (fields) and pick boxes must be displayed (*‘the determined schema’*) to how much content can fit on the screen of each ‘computer terminal or other display device’ (*‘to a capability of a terminal for displaying the data’*). Pet. 50–52 (citing *id.* § XI.A.1.e; Ex. 1005, Figs. 4a, 4e (annotated); Ex. 1003 ¶¶ 295–302).

c) Limitation 20.C

Limitation 20.C recites “*formatting a search request from the terminal to correspond to the determined schema.*”

Petitioner asserts that “Cochran composes ‘search requests’ (*‘formatting a search request’*) using the search terms that the user selects via the pick boxes / search table (*‘from the terminal’*).” Pet. 52 (citing *id.* §§ XI.A.1.b–d, XI.A.13; Ex. 1005, 6:40–52, 7:5–8:65; Ex. 1003 ¶¶ 303–306). Petitioner contends that the “search requests ‘correspond to the determined schema’; if they did not, the search requests would not refer to the correct data fields in the database.” *Id.* at 52–53 (citing Ex. 1005, 1:21–29, 14:24–26; Ex. 1003 ¶ 305).

d) Conclusion for Claim 20

Patent Owner does not dispute Petitioner’s contentions specific to claim 20.

We determine that Petitioner has demonstrated that the subject matter of claim 20 is unpatentable as obvious over Cochran in view of Zellweger.

17. *Claim 27*

Claim 27 depends from claim 3 and recites that the method “*further compris[es] displaying the data on a terminal, the terminal including one of a handheld device, a cellular phone, a geosynchronous positioning satellite (GPS) device, a wrist-worn device, an interactive phone device, a household appliance, a television, a television set top box, a handheld computer, a main frame computer and a personal computer.*”

Petitioner contends that “Cochran displays GUIs, including the list identifiers and search terms (*‘displaying the data’*), on a user’s ‘computer terminal’ that has a ‘display device’ (*‘a personal computer’*).” Pet. 53 (citing Ex. 1005, code (57), 4:10–19, 7:13–19; Ex. 1003 ¶¶ 307–308).

Patent Owner does not dispute Petitioner’s contentions specific to claim 27.

We determine that Petitioner has demonstrated by a preponderance of the evidence that the subject matter of claim 27 is unpatentable as obvious over Cochran in view of Zellweger.

18. *Claim 28*

Claim 28 depends from claim 3 and recites “*wherein the database is coupled to an Internet website, the method further comprising accessing the Internet website.*”

Petitioner contends that Cochran discloses accessing the database at a website’s page (“http://travelsearch.com”) (“*accessing the Internet website*”) such that the database must be coupled to this website (“*database is coupled to an Internet website*”). Pet. 53–54 (citing Ex. 1005, 4:65–67, 5:39–49,

6:6–64, 8:45–47, Fig. 1, 710 (server), 712 (database), 718 (site address); Ex. 1003 ¶¶ 309–311).

Patent Owner does not dispute Petitioner’s contentions specific to claim 28.

We determine that Petitioner has demonstrated by a preponderance of the evidence that the subject matter of claim 28 is unpatentable as obvious over Cochran in view of Zellweger.

19. *Claim 29*

Claim 29 depends from claim 3 and recites “*wherein the database is coupled to a node in a telecommunications network, the method further comprising accessing the node in the telecommunications network.*”

Petitioner contends that Cochran’s server hosts a database (“*the database is coupled to a node in a telecommunications network*”) and is accessed via the Internet (“*accessing the node in the telecommunications network*”). Pet. 54 (citing *id.* § XI.A.15 (discussing claim 28); Ex. 1003 ¶¶ 312–313).

Patent Owner does not dispute Petitioner’s contentions specific to claim 29.

We determine that Petitioner has demonstrated by a preponderance of the evidence that the subject matter of claim 29 is unpatentable as obvious over Cochran in view of Zellweger.

20. *Claim 30*

Claim 30 depends from claim 3 and recites “*wherein the database is coupled to a terminal for displaying the data.*”

Petitioner asserts that “Cochran’s database is connected (‘*coupled*’) to a computer terminal for displaying the data from the database (‘*terminal for*

displaying the data’).” Pet. 54–55 (citing Ex. 1005, code (57), 6:31–39, 7:9–18, Figs. 3a–10b; Ex. 1003 ¶¶ 314–317); *see also* Ex. 1005, Fig. 1, 720 (user computer terminal), 710 (server), 712 (database), 750 (Internet link).

Patent Owner does not dispute Petitioner’s contentions specific to claim 30.

We determine that Petitioner has demonstrated by a preponderance of the evidence that the subject matter of claim 30 is unpatentable as obvious over Cochran in view of Zellweger.

21. Conclusion for Ground 1

Petitioner has shown by a preponderance of the evidence that a POSITA would have been motivated to combine Cochran and Zellweger, which are analogous, with a reasonable expectation of success, and that each limitation of claims 1–7, 15–19, and 27–30 is taught or at least suggested by the combination of Cochran and Zellweger notwithstanding Patent Owner’s arguments. *See* §§ II.E.3–20, *supra*.

Accordingly, we determine that Petitioner has shown by a preponderance of the evidence that claims 1–7, 15–19, and 27–30 are unpatentable as obvious over Cochran in view of Zellweger.

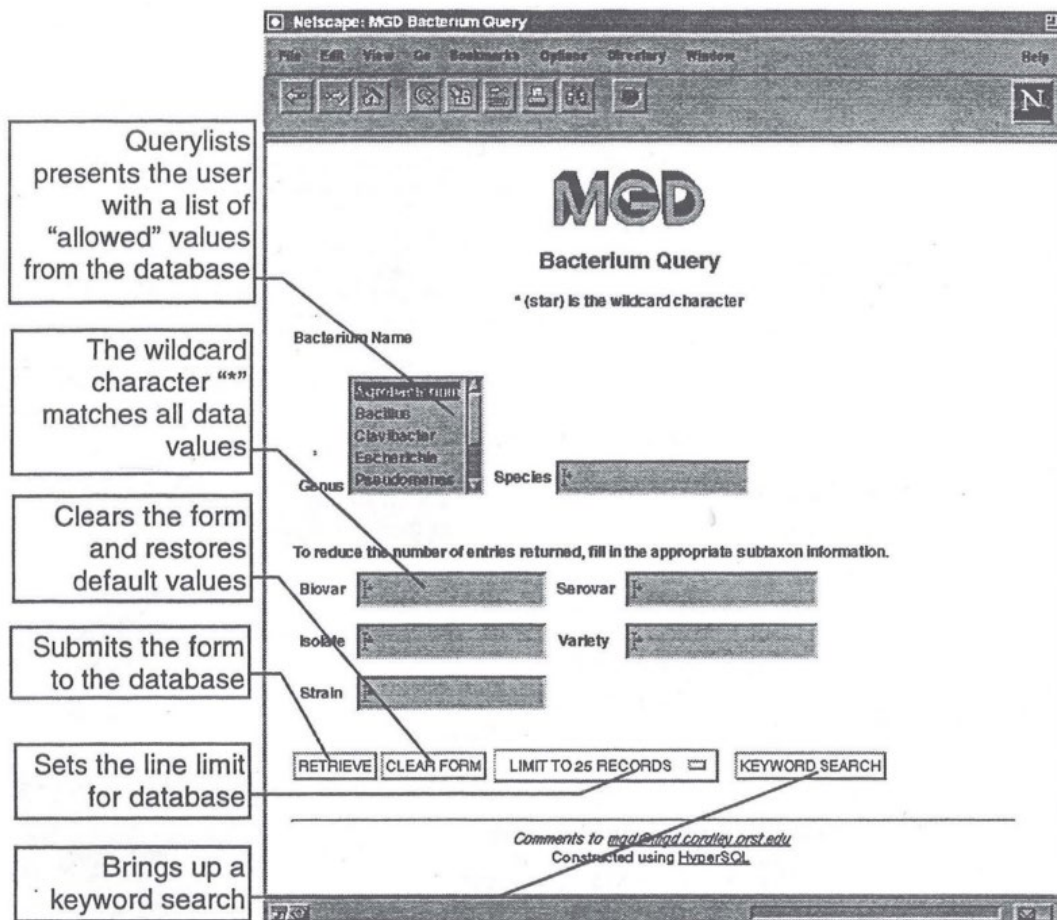
F. Ground 2: Obviousness over HyperSQL and Zellweger

We now address Petitioner’s contention that the subject matter of claims 1–5, 7, 15–19, and 27–30 would have been obvious over the combination of HyperSQL and Zellweger. Pet. 58–82 (citing Ex. 1003 ¶¶ 318–427); Pet. Reply 23–24. We also address Patent Owner’s arguments for patentability. PO Resp. 25; PO Sur-Reply 5.

1. *HyperSQL (Ex. 1006)*

HyperSQL is titled “HyperSQL: Web-based Query Interfaces for Biological Databases.” Ex. 1006, 329. HyperSQL is a paper disclosing an interoperability layer that permits database administrators to rapidly construct browser-based query interfaces to remote Sybase databases. *Id.* (abstract). HyperSQL creates forms and database interfaces that automatically compose Structured Query Language (SQL) from user input. *Id.* Database results are automatically formatted as graphics and hypertext, including clickable links that can issue additional queries for browsing through related data. *Id.*

HyperSQL’s Figure 2 is shown below.



Id. at 331. Figure 2 shows a query form for a user to enter search criteria. *Id.* The “RETRIEVE” button “submits the form and returns results.” *Id.* The “CLEAR” button “erases any information entered into the form, replacing them with default values.” *Id.* The pulldown menu located next to the “CLEAR” button limits the number of results returned from the query to a set number of records (e.g., 25 records). *Id.* “HyperSQL also supports [a] keyword search . . . to locate records that contain keyword(s) within any data field.” *Id.*

The HyperSQL query supports “query refinement,” allowing the user to fill in fields by selecting from “querylists” (lists of allowed values). *Id.* According to HyperSQL, “[q]uerylists are useful when the user does not know what the database contains, or simply wants to select from a list of values rather than typing.” *Id.*

2. *Motivation to Combine HyperSQL with Zellweger*

Petitioner contends that a POSITA would have been motivated to combine HyperSQL and Zellweger, with a high expectation of success, and alleges that these references are analogous. Pet. 58, 80–82 (citing Ex. 1003 ¶¶ 490–498). Specifically, Petitioner asserts that HyperSQL’s querylists can be lengthy and difficult to scroll through, and adding Zellweger’s Alphabet or Content Lists instead of Cochran’s scroll bars would improve usability when the number of “allowed values” for a query list exceeded a specified amount. *Id.* at 81 (citing Ex. 1003 ¶ 495). Petitioner asserts that “this combination would be nothing more than using one known method (Zellweger) to improve a known system (HyperSQL) according to the express teachings of Zellweger to yield predictable results.” *Id.*

Petitioner further asserts that a POSITA would have had a high expectation of success in integrating Zellweger’s list menu teachings into HyperSQL’s querylists because, among other reasons, this would require only routine programming. *Id.* at 81–82 (citing Ex. 1003 ¶ 492).

Patent Owner argues that Zellweger cannot be combined with HyperSQL. PO Resp. 1 (citing *id.* § VII.A). However, the section of the Response that Patent Owner cites (§ VII.A) addresses limitations that Patent Owner asserts are not disclosed by the combination, not the motivation to combine. *Id.* at 25. Accordingly, Patent Owner’s argument is unavailing.

We determine that Petitioner has shown by a preponderance of the evidence that a POSITA would have combined HyperSQL and Zellweger to improve HyperSQL’s querylist with Zellweger’s lists, and would have had a reasonable expectation of success in making the combination.

3. *Claims 1, 2, 4, 5, 7, 15–19, and 27–30*

Petitioner contends that each limitation of claims 1–5, 7, 15–19, and 27–30 is taught or suggested by the combination of HyperSQL and Zellweger. Pet. 58–82 (citing Ex. 1003 ¶¶ 321–427).

Patent Owner contends that the HyperSQL in view of Zellweger does not teach or suggest limitations 1.A, 1.B, 1.D, 1.E, 3.A, 3.C, and 3.D. PO Resp. 25; PO Sur-Reply 5.

As we explained for ground 1, contrary to Patent Owner’s arguments, the claims do not require “dynamic” or “search-on-the-fly” features, nor do they preclude “preconfigured” lists of fields or human involvement. *See* §§ II.E.4.b (limitation 1.A), II.E.4.c (limitation 1.B), II.E.4.e (limitation 1.E), II.E.6.b (limitation 3.A), II.E.6.d (limitation 3.C), and II.E.6.e (limitation 3.D). Thus, Patent Owner’s arguments do not undermine

Petitioner's contentions that these limitations are disclosed or at least suggested by the combination of HyperSQL and Zellweger. Patent Owner does not dispute that the remaining limitations of the challenged claims are disclosed or at least suggested by the combination of HyperSQL and Zellweger.

We have already addressed all of the claims challenged in this ground in ground 1. Consequently, for this ground, we address only the limitations of claim 3 because grounds 3 and 4 concern claims that depend from claim 3 against challenges based on HyperSQL in view of Zellweger.

4. *Claim 3*

Claim 3 is independent. We address Petitioner's and Patent Owner's contentions for claim 3 below. Pet. 58, 60–69; Pet. Reply 23–24; PO Resp. 23–24; PO Sur-Reply 5.

a) *Limitation 3.PRE: Preamble*

The preamble of claim 3 recites “*A method implemented on a computer for searching a database, comprising.*”

Referring back to its discussion for claim 1, Petitioner contends that HyperSQL in view of Zellweger discloses the claim 3's preamble. Pet. 66 (citing *id.* § XII.A.1.a (discussing claim 1's limitation 1.PRE); Ex. 1003 ¶ 363). Specifically, Petitioner contends that HyperSQL discloses a system running on a Web server for creating “forms- and hypertext-based database interfaces for non computer experts” that “permit the user to query databases by filling out query forms selected from menus.” *Id.* at 58 (citing Ex. 1006, 329–330, 335–336, Figs. 8, 9; Ex. 1003 ¶¶ 321–323).

Patent Owner does not dispute Petitioner's contention.

We find that Petitioner has shown by a preponderance of the evidence that the preamble of claim 3 is disclosed by HyperSQL in view of Zellweger.⁹

b) Limitation 3.A: Generating a List

Limitation 3.A of claim 3 recites “*generating a list of data fields.*”

Referring back to its discussion for limitation 1.B of claim 1, Petitioner contends that HyperSQL in view of Zellweger discloses this limitation. Pet. 66 (citing *id.* § XI.A.1.c; Ex. 1003 ¶ 363). Specifically, Petitioner contends that HyperSQL provides a list of “data entry fields” (“*database fields*”) with “prompts” (“*descriptors indicating a data category*”). *Id.* at 60–61 (citing Ex. 1006, 333; Ex. 1003 ¶¶ 330–332).

Petitioner provides an annotated version of HyperSQL’s Figure 2, shown below.

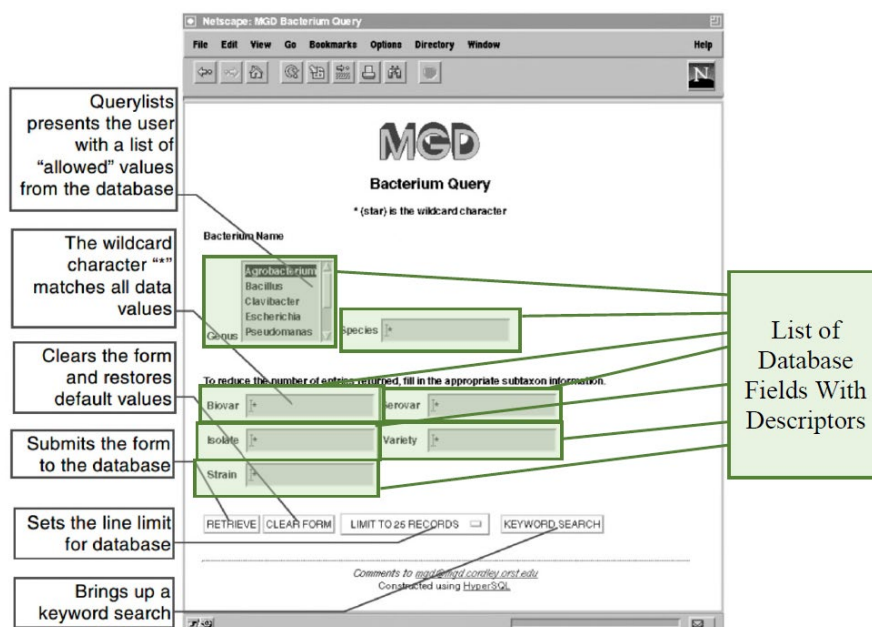


Figure 2. Example of a *query form* (shown in a Netscape browser)

⁹ Because Petitioner shows sufficiently that the preamble is disclosed by the asserted prior art references, we do not reach the issue of whether the preamble is limiting. See footnote 5.

Pet. 61. Petitioner’s annotated Figure 2 above shows that the HyperSQL Querylist includes a “Genus” descriptor which indicates that it relates to the database’s “Genus” data field. *Id.* (citing Ex. 1006, 229, 331–332, Figs. 2, 5).

For the reasons explained at the beginning of this section, Patent Owner’s arguments for limitation 1.B (PO Resp. 23–24; PO Sur-Reply 5) are unavailing because they are not supported by corresponding claim language.

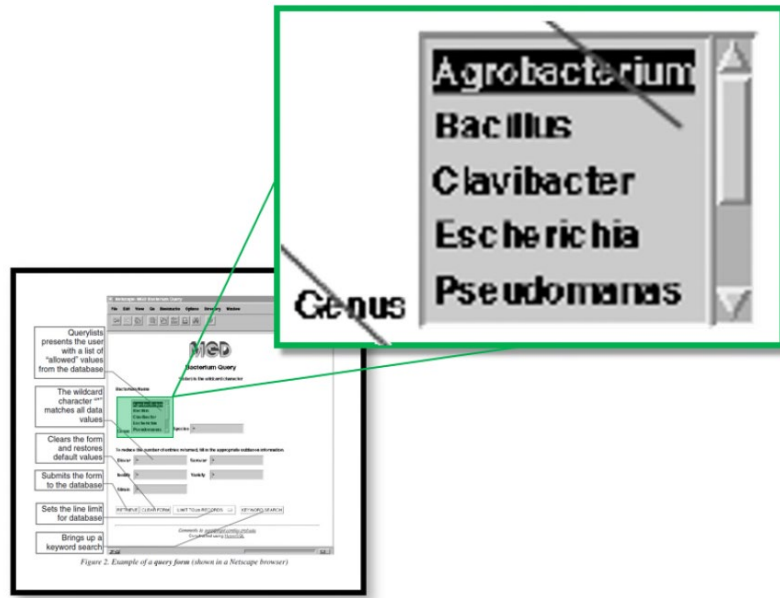
We determine that Petitioner has shown by a preponderance of the evidence that claim 3’s limitation 3.A is disclosed or at least suggested by HyperSQL in view of Zellweger.

c) Limitation 3.B: Receiving a Data Field Selection

Limitation 3.B of claim 3 recites “*receiving a first data field selection from the list of data fields.*”

Referring back to its discussion for limitation 1.C of claim 1, Petitioner contends that HyperSQL in view of Zellweger discloses this limitation. Pet. 66 (citing *id.* § XII.A.1.d; Ex. 1003 ¶ 366). Specifically, Petitioner contends that HyperSQL uses can select a database field (“*receiving a search selection for a database field on the provided list of database fields*”) by interacting with the field on the query form. *Id.* at 61–62 (citing Ex. 1003 ¶ 333). Petitioner notes that “HyperSQL querylists are ‘scrollable lists that are filled with information acquired automatically from the database.’” *Id.* at 62 (citing Ex. 1006, 333).

Petitioner provides the following annotated version of HyperSQL’s Figure 2:



In the annotated figure above, Petitioner contends that “HyperSQL receives a search selection for the database field ‘Genus’ for which the ‘allowed’ values from the database start with ‘Agrobacterium.’” *Id.* at 62 (citing Ex. 1006, Figs. 2, 5; Ex. 1003 ¶¶ 334–335).

Patent Owner does not dispute Petitioner’s contentions for limitation 3.C.

We find that Petitioner has shown by a preponderance of the evidence that claim 3’s limitation 3.B is disclosed or at least suggested by HyperSQL in view of Zellweger.

d) Limitation 3.C: Determining a First Quantity

Limitation 3.C of claim 3 recites “*determining a first quantity indicative of a number of entries of the selected data field.*”

Referring back to its discussion for limitation 1.D of claim 1, Petitioner contends that HyperSQL in view of Zellweger discloses this limitation. Pet. 67 (citing *id.* § XII.A.1.e; Ex. 1003 ¶ 368)). Specifically, Petitioner argues that Zellweger discloses determining a number of items

(“*quantity of entries*”) in a “*selected database field*” because Zellweger’s Figure 6a shows the number of items in the “Author” data field as “1,231” entries. Petitioner asserts that applying Zellweger’s teaching to HyperSQL would allow it to similarly determine the number of entries populating a selected querylist (“*a quantity of entries in the selected database field*”). *Id.* at 63 (citing Ex. 1003 ¶¶ 337–338).

Patent Owner presents the same arguments previously noted for limitation 3.A, which are unavailing for the same reasons. PO Resp. 23–24; PO Sur-Reply 5; *see* § II.F.4.b, *supra*).

We find that Petitioner shows by a preponderance of the evidence that claim 3’s limitation 3.C is disclosed or at least suggested by HyperSQL in view of Zellweger.

e) Limitation 3.D: Reducing Size of Data if First Quantity Exceeds a Specified Limit

Limitation 3.D of claim 3 recites “*if the first quantity exceeds a specified limit, reducing a size of data to be displayed from the selected data field wherein the reducing reduces characters in one or more entries in the selected data field and the size-reduced data represents each of the entries in the selected field.*”

Referring back to its discussion for claim 1’s limitation 1.E, and forward to its discussion for claim 3’s limitation 3.E, Petitioner contends that HyperSQL in view of Zellweger discloses limitation 3.D. Pet. 67 (citing *id.* §§ XII.A.1.f; and Pet. § XII.A.3.f; Ex. 1003 ¶ 370). Specifically, Petitioner contends that Zellweger discloses reducing (“*truncating*”) lists that are voluminous (where “*the quantity [of entries] exceed[s] a specified amount*”) into Alphabet Lists and Content Lists which represent all available entries

using letters or tabs (“*the truncating reduces characters in one or more entries in the selected database field and the truncated data represents each of the entries in the selected database field*”). Pet. 64 (citing *id.* § XI.A.1.f; Ex. 1003 ¶¶ 348–354).

Petitioner contends that a user may set Zellweger’s “Minimum” to a “*specified amount*” such that “if the number of entries to be displayed in the querylist is greater than the specified amount, the entries are truncated and displayed in a Zellweger-style list using the truncated representation.” *Id.* at 64–65 (citing § XI.A.1.f; Ex. 1003 ¶¶ 355–357). Petitioner asserts that, for example, “if the number of entries in the ‘Genus’ Querylist was large, the entries would be truncated to make the list more manageable” and “a user could select a threshold limit for converting lists to Alphabet or Content Lists.” *Id.* at 65.

Patent Owner presents the same arguments previously noted for limitation 3.A, which are unavailing for the same reasons. PO Resp. 23–24; PO Sur-Reply 5; *see* § II.F.4.b, *supra*.

We determine that Petitioner shows by a preponderance of the evidence that claim 3’s limitation 3.D is disclosed by HyperSQL in view of Zellweger.

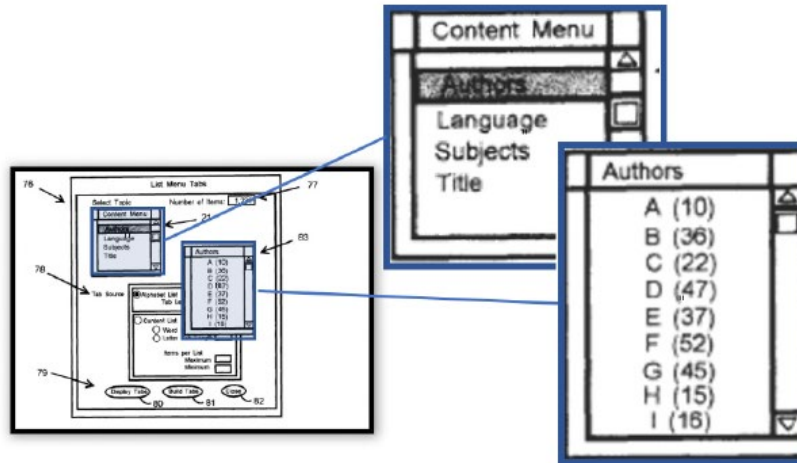
f) Limitation 3.E: Displaying Data from the Selected Data Field

Limitation 3.E of claim 3 recites “*displaying data from the selected data field.*”

For the reasons stated for limitation 1.E of claim 1, Petitioner contends that HyperSQL in view of Zellweger discloses this limitation. Pet. 67–69 (citing *id.* § XI.A.1.f; Ex. 1003 ¶¶ 371–377). Specifically,

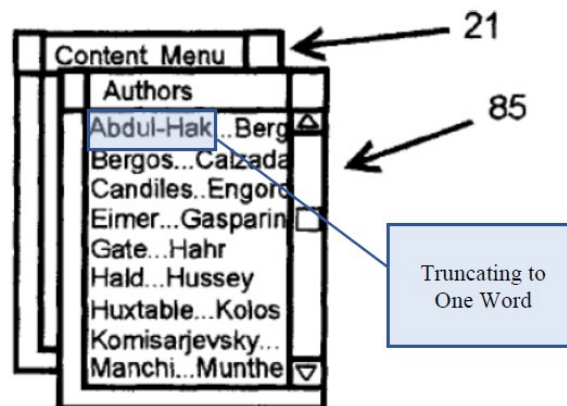
Petitioner asserts that each of HyperSQL and Zellweger display data in the querylist selected by the user (“*displaying data from the selected data field*”). *Id.* at 67.

Petitioner provides an annotated version of Zellweger’s Figure 6b as shown below:



Pet. 68. Petitioner annotates Zellweger’s Figure 6b above to show that the Alphabet List displays Author’s names truncated to just the first letter with a scroll bar to navigate to all authors (including those beginning with the letter “L” through “Z”).

Petitioner also provides an annotated version of Zellweger’s Figure 7 shown below:



Pet. 69. Petitioner annotates Zellweger's Figure 7 above to show a Content List menu in which the Author's names are truncated to just one word.

Patent Owner does not dispute Petitioner's contentions for limitation 3.E.

We determine that Petitioner has shown by a preponderance of the evidence that limitation 3.E is disclosed by HyperSQL in view of Zellweger.

g) Conclusion for Claim 3

Petitioner has shown by a preponderance of the evidence that claim 3 is unpatentable as obvious over Cochran in view of Zellweger. *See* §§ II.E.3 and II.E.6.a–f, *supra*

5. Conclusion for Ground 2

After reviewing the record, we determine that Petitioner has shown by a preponderance of the evidence that a POSITA would have combined HyperSQL and Zellweger, which are analogous, with a reasonable expectation of success, and that each limitation of challenged claims 1–5, 7, 15–19, and 27–30 is disclosed or at least suggested by the combination of HyperSQL and Zellweger. Petitioner has thus met its burden to demonstrate unpatentability of claims 1–5, 7, 15–19, and 27–30 notwithstanding Patent Owner's arguments.

G. Ground 3: Obviousness over HyperSQL, Zellweger, and Microsoft Access

We now address Petitioner's contention that the subject matter of claims 21–23 would have been obvious over the combination of HyperSQL, Zellweger, and Microsoft Access. Pet. 82–89. Patent Owner asserts patentability of these claims using the same arguments presented for ground 2. PO Resp. 25; PO Sur-Reply 5.

6. *Microsoft Access (Ex. 1009)*

Microsoft Access is a textbook titled “Using Microsoft Access 97.” Ex. 1009, cover. The textbook relates to using a “relational database management system (RDBMS) for creating desktop and client/server database applications” known as “Microsoft Access 97.” *Id.* at 1¹⁰.

Microsoft Access’s Table 9.3 is shown below. *Id.* at 291.

Table 9.3 Logical Operators			
Operator	Description	Example 1 Example 2	Result 1 Result 2
And	Logical and	True And True True And False	True False
Or	Inclusive or	True Or False False Or False	True False
Not	Logical not	Not True Not False	False True
Xor	Exclusive or	True Xor False True Xor True	True False

Table 9.3 discloses logical operators (i.e., Boolean operators) that are used “to combine the results of two or more comparison expressions into a single result.” *Id.*

7. *Motivation to Combine HyperSQL, Zellweger, and Microsoft Access*

Petitioner contends that a POSITA would have been motivated to combine HyperSQL, Zellweger, and Microsoft Access, alleged to be analogous, with a high expectation of success. Pet. 87–89 (citing Ex. 1003 ¶¶ 499–510). Specifically, Petitioner asserts that HyperSQL discloses searching multiple databases, and a POSITA would have desired to combine

¹⁰ We use the actual page numbering of the textbook rather than Petitioner’s Bates numbering.

search results from these databases in various ways, including “AND” and “OR” operations. *Id.* at 87.

In addition, Petitioner contends that HyperSQL, Zellweger, and Microsoft Access are analogous because they all relate to graphical means of accessing or displaying information in databases. *Id.* at 89.

Petitioner asserts a POSITA would have had a high expectation of success in adapting HyperSQL and Zellweger to take advantage of Microsoft Access’s teachings because they involve basic and fundamental digital logic operations (“AND” and “OR”) and “would have required only routine and minor software adjustments.” *Id.* at 89.

Other than as discussed for ground 2, Patent Owner does not argue against the combination of HyperSQL, Zellweger, and Microsoft Access. *See* § II.F.2, *supra*.

After reviewing the record, we determine that Petitioner has shown by a preponderance of the evidence that a POSITA would have been motivated to combine HyperSQL, Zellweger, and Microsoft Access, which are analogous, with a reasonable expectation of success.

8. *Claim 21*

Claim 21 depends from claim 3. Petitioner addresses this claim in four parts referred to as limitations 21.A to 20.D. Pet. 82–85.

a) *Limitation 21.A*

Limitation 21.A recites “*The method of claim 3, wherein the method for searching the database comprises searching a first database and a second database, and further comprising:*”

Petitioner asserts that HyperSQL issues searches against a first “Sybase Database” and a second “Sybase Database” (“*the method for*

searching the database comprises searching a first database and a second database”). Pet. 82 (citing Ex. 1006, 329–330, 335, Fig. 8; Ex. 1003 ¶¶ 431–433).

Petitioner provides the following annotated version of HyperSQL’s Figure 8 (Pet. 83):

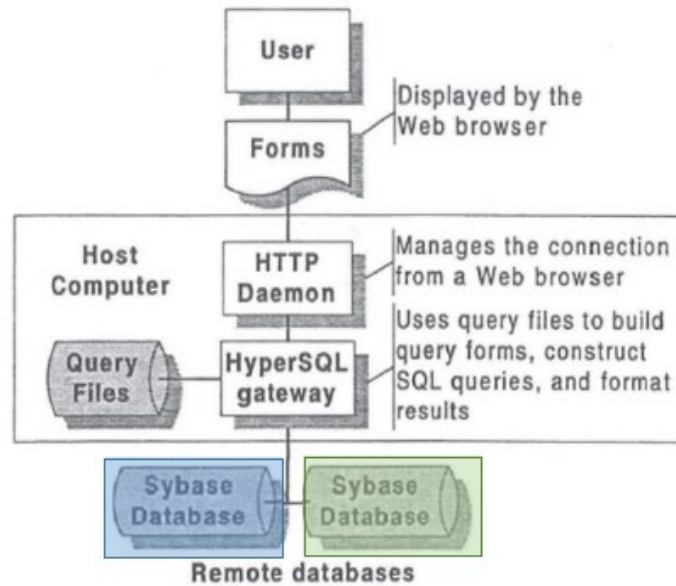


Figure 8. HyperSQL architecture

Petitioner’s annotated version of HyperSQL’s Figure 8 shows the first Sybase Database (blue) and second Sybase Database (green).

b) Limitation 21.B

Limitation 21.B recites “*receiving a first search result from the search of the first database.*”

Petitioner contends that HyperSQL queries are sent to and received from the first Sybase Database (“*a first search result from the search of the first database*”). Pet. 83 (citing *id.* § XIII.A.1.a; Ex. 1003 ¶ 434).

c) Limitation 21.C

Limitation 21.C recites “*receiving a second search result from the search of the second database.*”

Petitioner contends that HyperSQL discloses this limitation. Pet. 83–84 (citing *id.* §§ XIII.A.1.a–b). Petitioner notes that HyperSQL supports “multi-database management capabl[e]” database systems used in situations “requiring data from multiple sources.” *Id.* at 83–84 (citing Ex. 1006, 329, 335). Petitioner asserts that a POSITA would have understood that in such a multi-database system, queries are sent to and fulfilled by multiple databases, and that HyperSQL queries are sent to, and results returned from, the second Sybase Database (“*a second search result from the search of the first database*”). Pet. 84 (citing *id.* §§ III.A.1.a; Ex. 1003 ¶¶ 435–437).

d) Limitation 21.D

Limitation 21.D recites “*combining the first and the second search results.*”

Petitioner contends that HyperSQL discloses combining results from the first and second Sybase Databases (“*combining the first and the second search results*”). Pet. 84 (citing Ex. 1003 ¶¶ 438–443). Specifically, Petitioner asserts that the results from both databases would be combined together when a user presses the “RETRIEVE” button on the query form to “submit[] the form and return[] results.” Pet. 84 (citing *id.* §§ XIII.A.1.b, XIII.A.1.c; Ex. 1006, 331, Fig. 3; Ex. 1003 ¶ 438).

e) Conclusion for Claim 21

Patent Owner presents no arguments specific to claim 21.

We determine that Petitioner has demonstrated by a preponderance of the evidence that the subject matter of claim 20 is unpatentable as obvious over HyperSQL in view of Zellweger.

9. *Claim 22*

Claim 22 depends from claim 21 and recites “*wherein the combining step comprises a Boolean AND operation.*”

Petitioner contends that Microsoft Access discloses Boolean operations including an “AND” operation. Pet. 85–86 (citing Ex. 1009, 291; Ex. 1006, Figs. 3, 4; Ex. 1003 ¶¶ 444–447).

Patent Owner presents no arguments specific to claim 22.

We determine that Petitioner has shown by a preponderance of the evidence that claim 22 is unpatentable as obvious over the combination of HyperSQL, Zellweger, and Microsoft Access.

10. *Claim 23*

Claim 23 depends from claim 21 and recites “*wherein the combining step comprises a Boolean OR operation.*”

Petitioner contends that Microsoft Access discloses a Boolean “OR” operation. Pet. 86 (citing Ex. 1009, 291, Figs. 3, 4; Ex. 1003 ¶¶ 448–451).

Patent Owner presents no arguments specific to claim 23.

We determine that Petitioner has shown by a preponderance of the evidence that claim 23 is unpatentable as obvious over HyperSQL in view of Zellweger and Microsoft Access.

11. *Conclusion for Ground 3*

Petitioner has shown by a preponderance of the evidence that a POSITA would have combined HyperSQL, Zellweger, and Microsoft Access, which are analogous, with a reasonable expectation of

success, and that the subject matter of each limitation of claims 21–23 is taught or at least suggested by the combination. Accordingly, Petitioner has shown by a preponderance of the evidence that the subject matter of claims 21–23 would have been obvious over the combination of HyperSQL, Zellweger, and Microsoft Access notwithstanding Patent Owner’s arguments for claim 3 from which these claims depend.

H. Ground 4: Obviousness over HyperSQL, Zellweger, Microsoft Access, and Janes

We now address Petitioner’s contention that the subject matter of claim 25 would have been obvious over the combination of HyperSQL, Zellweger, Microsoft Access, and Janes. Pet. 90–93 (citing Ex. 1003 ¶¶ 452–463). Patent Owner asserts patentability of these claims using the same arguments presented for ground 2. PO Resp. 25; PO Sur-Reply 5.

1. Janes (Ex. 1012)

Janes discloses a “livestock and material inventory system having a database storing inventory data” and “a graphical user interface operable to display data.” Ex. 1012, code (57). The “graphical user interface includes a first window operable to display a hierarchical tree structure representation of the inventory data, and a second window operable to display a data summary associated with a selected node in the hierarchical tree structure.” *Id.*

Janes's Figure 2A is reproduced below.

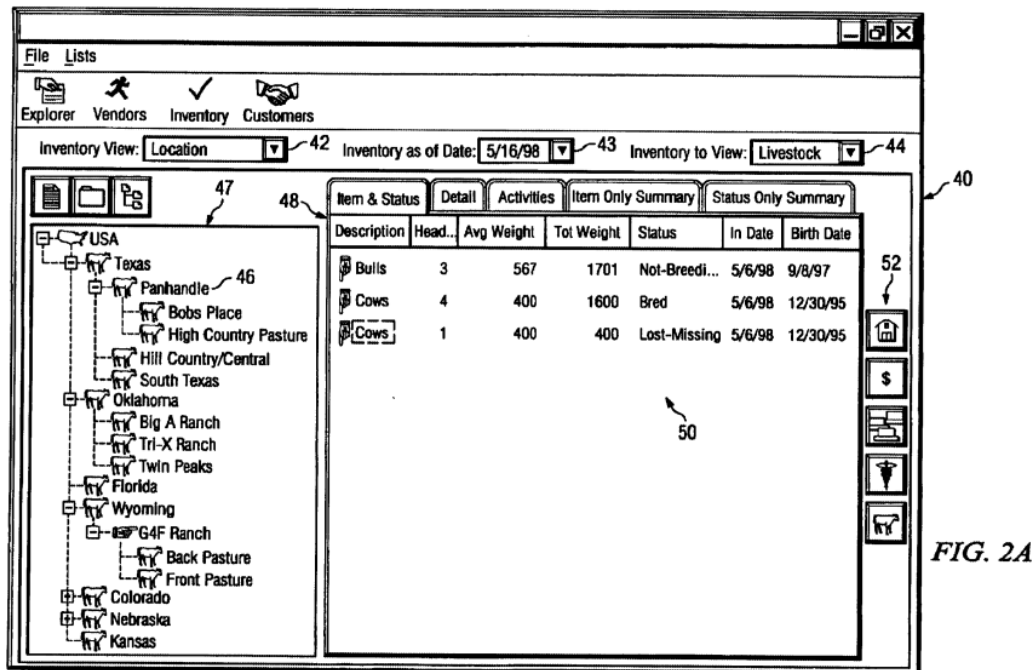


Figure 2A shows a graphical user interface with a pull-down list 42 to select an inventory view, pull-down list 43 to display date, and pull-down list 44 to select which inventory to display. *Id.* at 4:48–60. The pull-down lists limit or focus the data displayed in hierarchical tree data structure 46 in left-hand panel or window 47. *Id.* at 4:61–63. Right-hand panel or window 48 displays tabbed data summary pages 50. *Id.* at 5:15–16.

Janes's graphical user interface allows a user to enter into a business transaction by drag-and-drop methods. *Id.* at 2:49–53. For example, in Jane's Figure 10, a user may click on a group of cattle displayed in the right-hand panel of buyer explorer 21 and drag it to the hierarchical tree structure displayed on the left-hand panel of order explorer 20 to complete a business transaction. *Id.* at 11:66–12:61.

2. *Motivation to Combine HyperSQL, Zellweger, Microsoft Access, and Janes*

Petitioner contends that a POSITA would have been motivated to combine HyperSQL, Zellweger, Microsoft Access, and Janes, alleged to be analogous, with a high expectation of success. Pet. 92–93 (citing Ex. 1003 ¶¶ 511–516).

Specifically, Petitioner contends that a POSITA would have been motivated to integrate Janes’ drag-and-drop teachings into the HyperSQL-Zellweger-Microsoft Access combination to provide the user with more meaningful feedback during the query process, and to make it easier to conduct queries and combine the results. *Id.* at 92 (citing Ex. 1006, 330; Ex. 1003 ¶ 514).

Petitioner contends Janes is analogous because, like the other references, it relates to graphical means of accessing or displaying information from databases. *Id.* at 93 (citing Ex. 1012, code (57), 2:27–48).

Petitioner argues that a POSITA would have had a high expectation of success in combining Janes’ teachings with the HyperSQL-Zellweger-Microsoft Access combination because it would involve only routine software adjustments. *Id.* (citing Ex. 1003 ¶¶ 515–516).

Other than as discussed for ground 2, Patent Owner does not argue against the combination of HyperSQL, Zellweger, Microsoft Access, and Janes. *See* § II.F.2, *supra*.

After reviewing the record, we determine that Petitioner has shown by a preponderance of the evidence that a POSITA would have been motivated to combine HyperSQL, Zellweger, Microsoft Access, and Janes with a

reasonable expectation of success notwithstanding Patent Owner’s ground 2 arguments.

3. *Claim 25*

Claim 25 depends from claim 21 and recites “*wherein the first search result is represented by a first icon and the second search result is represented by a second icon, and wherein the combining step comprises overlaying the first and the second icons.*”

Petitioner contends that the combination of HyperSQL, Zellweger, Microsoft Access, and Janes discloses the limitations of claim 25. Pet. 90–92 (citing Ex. 1003 ¶¶ 452–463). Specifically, Petitioner contends that HyperSQL’s first and second search results are formatted as graphics and hypertext (“*the first search result is represented by a first icon and the second search result is represented by a second icon*”). Pet. 90 (citing *id.* §§ XIII.A.1.a–c; Ex. 1003 ¶ 455).

Petitioner further contends that Janes discloses that users can associate elements in the graphical interface with other elements by dragging and dropping an icon or text representation of one search result onto another to visually combine them (“*combining step comprises overlaying the first and the second icons*”). *Id.* at 90–92 (citing Ex. 1012, code (57), 1:13–16, 2:10–19, 2:48–62, 4:30–38, 4:48–5:60, 8:61–9:11, 9:41–45, 11:44–55, 12:29–44, Figs. 2A–2J, 4A–11; Ex. 1003 ¶¶ 455–463).

Patent Owner relies on the arguments already discussed for ground 2, which we find unavailing (*see* § II.F.3, *supra*). Patent Owner presents no arguments specific to claim 25.

After reviewing the record, we determine that Petitioner has shown by a preponderance of the evidence that the subject matter of claim 25 is

disclosed or at least suggested by the combination of HyperSQL, Zellweger, Microsoft Access, and Janes.

4. *Conclusion for Ground 4*

Petitioner demonstrates that a POSITA would have been motivated to combine HyperSQL, Zellweger, Microsoft Access, and Janes with a reasonable expectation of success, and that the subject matter of claim 25 is disclosed or at least suggested by the combination. Accordingly, Petitioner has shown by a preponderance of the evidence that claim 25 is unpatentable as obvious over the combination of HyperSQL, Zellweger, Microsoft Access, and Janes.

I. *Ground 5: Obviousness over Cochran, Zellweger, Janes, and Spiegel*

We now address Petitioner's contention that the subject matter of claim 26 would have been obvious over the combination of Cochran, Zellweger, Janes, and Spiegel. Pet. 94–97 (citing Ex. 1003 ¶¶ 464–477). Patent Owner asserts patentability of these claims using the same arguments presented for ground 2. PO Resp. 25; PO Sur-Reply 5.

1. *Spiegel (Ex. 1013)*

Spiegel is titled “Method and System for Electronic Commerce Using Multiple Roles.” Ex. 1013, code (54). Spiegel discloses a server computer system that provides an electronic version of a catalog that a potential purchaser can browse over the Internet via a browser. *Id.* at 2:1–20. The purchaser can select items from the catalog and add them to a shopping cart to be purchased with a “check out” process. *Id.* at 2:21–34. The system allows users to drag-and-drop items into the shopping cart. *Id.* at 10:46–50.

2. *Motivation to Combine Cochran, Zellweger, Janes, and Spiegel*

Petitioner contends that a POSITA would have been motivated to combine Cochran, Zellweger, Janes, and Spiegel, alleged to be analogous, with a high expectation of success. Pet. 96–97 (citing Ex. 1003 ¶¶ 517–522).

Specifically, Petitioner contends that Janes’ icons would assist a user in achieving Cochran’s aim to provide efficient and user-friendly ways to search databases and to discern different records. Pet. 96 (citing Ex. 1005, 4:2–19, 13:2–7, Fig. 4c; Ex. 1003 ¶ 519). Petitioner further asserts that Spiegel’s teachings about dragging and dropping items into shopping carts to make purchases would be useful in booking hotels with Cochran’s Travel Search. *Id.* at 96–97 (citing Ex. 1003 ¶ 520).

Petitioner contends that the references are analogous because they all relate to graphical means of accessing or manipulating information in databases. *Id.* at 97 (citing Ex. 1005, code (57); Ex. 1007, 2:1–18; Ex. 1012, code (57), 2:27–48; Ex. 1013, 6:59–7:13).

Petitioner contends a POSITA would have had a high expectation of success in adapting the Cochran-Zellweger combination to include James’ and Spiegel’s teachings because, among other reasons, this would involve only routine software adjustments. *Id.* (citing Ex. 1003 ¶¶ 521–522).

Other than as discussed for ground 1, Patent Owner does not argue against the combination of Cochran, Zellweger, Janes, and Spiegel. *See* § II.E.3, *supra*.

After review of the record, we determine that Petitioner has shown by a preponderance of the evidence that a POSITA would have been motivated

to combine Cochran, Zellweger, Janes, and Spiegel, which are analogous, with a reasonable expectation of success.

3. *Claim 26*

Claim 26 depends from claim 3. Petitioner addresses this claim in three parts referred to as limitations 26.A to 26.C. Pet. 94–96.

a) *Limitation 26.A*

Limitation 26.A recites “*The method of claim 3, wherein the displayed data includes one or more data records.*”

Petitioner contends that Cochran displays data including data records (“*wherein the displayed data includes one or more data records*”). Pet. 94 (citing Ex. 1005, 13:2–14; Ex. 1003 ¶¶ 467–469).

b) *Limitation 26.B*

Limitation 26.B recites “*each of the one or more data records represented by one or more of text title and an icon, and further comprising overlaying a text title or an icon on a symbol representing an online purchase.*”

Petitioner contends Janes represents data records with text titles and icons (“*each of the one or more data records represented by one or more of text title[s] and an icon*”). Pet. 94 (citing *id.* §§ X.E, XIV.A.1; Ex. 1003 ¶ 470).

Petitioner asserts that Spiegel discloses dragging and dropping items into carts to make online purchases. *Id.* at 94–95 (citing Ex. 1013, code (57), 1:6–9, 2:1–20, 2:61–3:16, 10:31–54).

Petitioner argues that a POSITA would have augmented the Cochran-Zellweger combination to drag-and-drop (Spiegel) icons or text (Janes) onto a purchase icon to purchase stays at accommodations (a hotel, resort, or inn)

(Cochran-Zellweger). *Id.* at 95 (citing Ex. 1005, 6:58–64; Ex. 1003 ¶¶ 471–474).

c) Limitation 26.C

Limitation 26.C recites “*wherein the step of overlaying initiates an online purchase of an item represented by the text title or icon.*”

Petitioner contends that Spiegel discloses dragging and dropping items into shopping carts to initiate purchases, and asserts that a POSITA would have designed the system to initiate a purchase by dragging and dropping a product’s text or icon onto the shopping cart (“*the step of overlaying initiated an online purchase of an item represented by the text title or icon*”). Pet. 95–96 (citing Ex. 1013, 2:21–34, 4:19–24, 10:43–54; Ex. 1003 ¶¶ 475–477).

d) Conclusion for Claim 26

Patent Owner relies on the arguments already discussed for ground 1, which we find unavailing (*see* § II.E.6, *supra*). Patent Owner presents no arguments specific to claim 26.

After reviewing the record, we determine that Petitioner has shown by a preponderance of the evidence that the subject matter of claim 26 is taught or at least suggested by the combination of Cochran, Zellweger, Janes, and Spiegel.

4. Conclusion for Ground 5

We determine that Petitioner has shown by a preponderance of the evidence that a POSITA would have combined Cochran, Zellweger, Janes, and Spiegel with a reasonable expectation of success, and that the subject matter of claim 26 is disclosed or at least suggested by the combination.

Accordingly, we determine that claim 26 would have been obvious over the combination of Cochran, Zellweger, Janes, and Spiegel notwithstanding Patent Owner's ground 1 arguments.

III. CONCLUSION

After considering the evidence and arguments presented in the Petition, we determine that Petitioner has shown by a preponderance of the evidence that Zellweger is § 102(e) prior art to the '720 patent, that claims 1–7, 15–20, and 27–30 would have been obvious over the combination of Cochran and Zellweger (ground 1), and that claims 1–5, 7, 15–19, and 27–30 would have been obvious over the combination of HyperSQL and Zellweger (ground 2). We further determine that claims 21–23 would have been obvious over the combination of HyperSQL, Zellweger, and Microsoft Access (ground 3), that claim 25 would have been obvious over the combination of HyperSQL, Zellweger, Microsoft Access, and Janes (ground 4), and that claim 26 would have been obvious over the combination of Cochran, Zellweger, Janes, and Spiegel (ground 5).

IV. ORDER

For the foregoing reasons, it is

ORDERED that, pursuant to 35 U.S.C. § 318(a), claims 1–7, 15–23, and 25–30 of the '720 patent have been shown to be unpatentable; and

FURTHER ORDERED that any party seeking judicial review must comply with the notice and service requirements of 37 C.F.R. § 90.2.¹¹

¹¹ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this Decision, we draw Patent Owner's attention to the April 2019 Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding. *See* 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. § 42.8(a)(3), (b)(2).

In summary:

Claim(s)	35 U.S.C. §	Reference(s)/Basis	Claim(s) Shown Unpatentable	Claim(s) Not shown Unpatentable
1–7, 15–20, 27–30	103(a)	Cochran, Zellweger	1–7, 15–20, 27–30	
1–5, 7, 15–19, 27–30	103(a)	HyperSQL, Zellweger	1–5, 7, 15–19, 27–30	
21–23	103(a)	HyperSQL, Zellweger, Microsoft Access	21–23	
25	103(a)	HyperSQL, Zellweger, Microsoft Access, Janes	25	
26	103(a)	Cochran, Zellweger, Janes, Spiegel	26	
Overall Outcome			1–7, 15–23, 25–30	

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