

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

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.”). The Petition was accorded a filing date of December 1, 2023. Paper 5 (Notice of Filing Date Accorded on December 22, 2023). Patent Owner, Joseph L. De Bellis, did not file a Preliminary Response.

Under 35 U.S.C. § 314(a), an *inter partes* review may not be instituted unless the information presented in a petition and the preliminary response “shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” Upon consideration of the Petition and Preliminary Response, and accompanying exhibits and evidence, we determine Petitioner has established a reasonable likelihood that it would prevail with respect to at least one challenged claim in the *inter partes* review. Therefore, we grant institution of an *inter partes* review as to all of the challenged claims of the ’720 patent on all challenges in the Petition.

B. *Real Parties in Interest*

Petitioner and Patent Owner identify themselves as the real parties-in-interest. Pet. 4; Paper 4, 2 (Patent Owner’s Mandatory Notices).

C. *Related Matters*

Petitioner and Patent Owner (“the parties”) 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

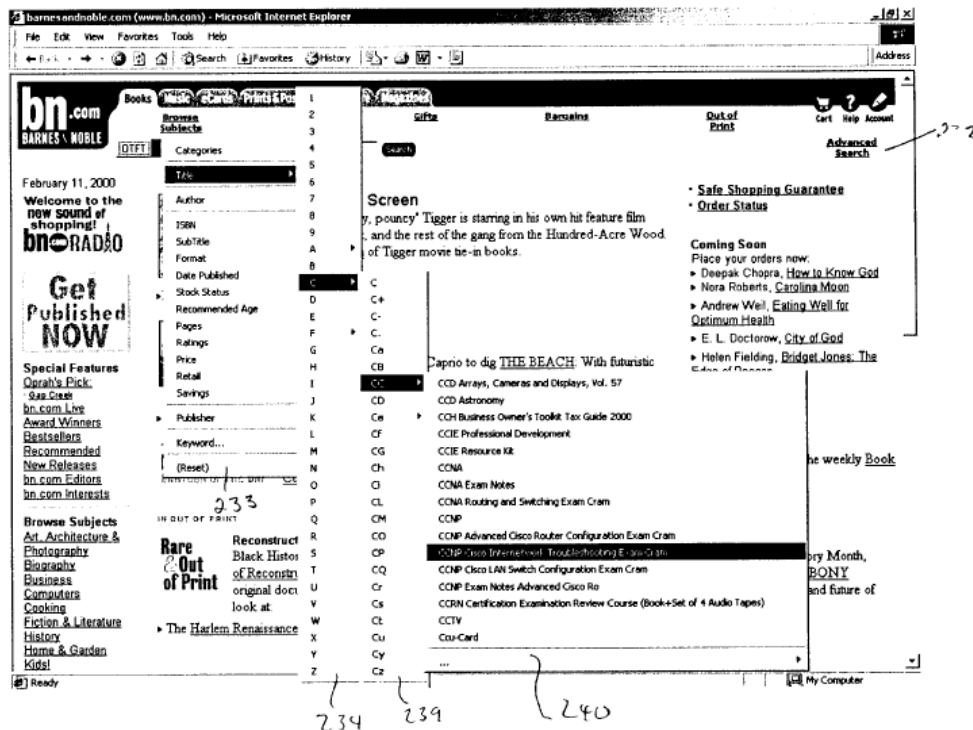


Figure 13 shows an exemplary search of a remote database (e.g., database 13 shown in Fig. 1). *Id.* at 10:37–38. The search of the database returns a list 233 of titles to the terminal. *Id.* at 10:46–48. Because the list 233 of titles is too large to display on the terminal, truncator 152 loops until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

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 Sep. 30, 2003	Ex. 1013

Petitioner also supports its challenges with a declaration from Erez Zadok, Ph.D. Ex. 1003.

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 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.

Ground	Challenged Claims	35 U.S.C. §	Reference(s)/Basis
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. For the reasons that follow, we determine that Petitioner has presented a reasonable likelihood that at least 1 claim of the ’720 patent is unpatentable.

A. 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.³ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

B. Level of Ordinary Skill in the Art

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).

Petitioner’s proposed level of skill in the art is consistent with the prior art references asserted by Petitioner. *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 will use Petitioner’s proposed level for purposes of this Decision.

C. 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).

³ “There is no evidence of any secondary considerations of non-obviousness” on this record. Pet. 98 (citing Ex. 1003 ¶ 523).

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).

Petitioner contends that the challenged claims' terms "can be afforded their plain and ordinary meaning." Pet. 17. As there is no dispute of any claim term at this time, we do not expressly construe any claim term, and will apply the ordinary and customary meaning consistent with 37 C.F.R. § 42.100(b).

D. 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.

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 shows a window titled "Travel Search Database" with a subtitle "Travel Search Database - Selection Screen". It contains a list of search criteria with corresponding values and search buttons. The criteria are numbered 1 through 7. Criteria 1, 2, and 3 are already filled with values. Criteria 4, 5, 6, and 7 have pick boxes with default values and "Search" buttons. Below the criteria, it shows "...Number Found: 1308". At the bottom, there are buttons for "View All", "View One", "Reset 4-7", "Start Over", and "... Help ...".

Identifier	Field	Value	Search Button
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.

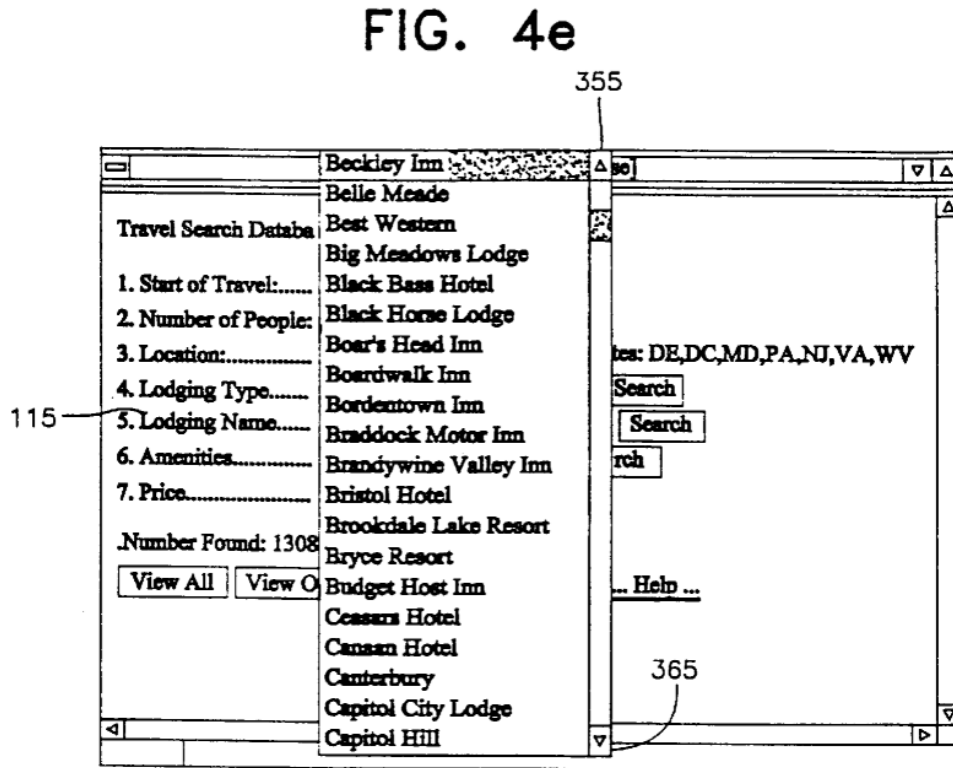


Figure 4e shows part of the list of search terms 215 available for list identifier 114 “Lodging Name.” *Id.* at 13:58–59. “Only a portion of the list is displayed at any given time since there are more Lodging Names in the subset than can fit on the display screen simultaneously.” *Id.* at 13:60–63.

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.

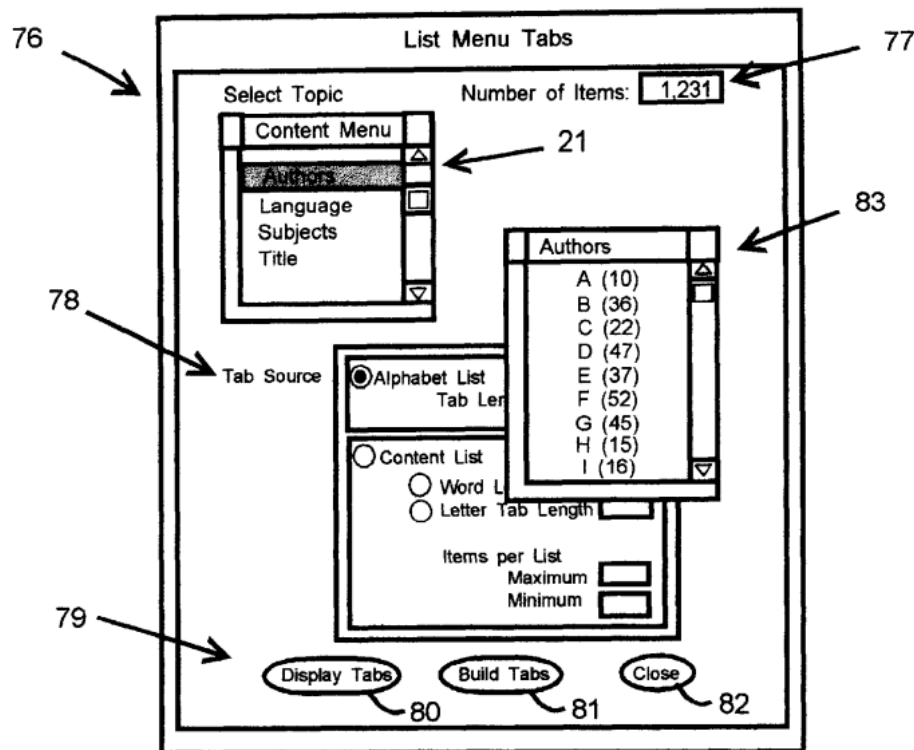


Fig. 6b

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.

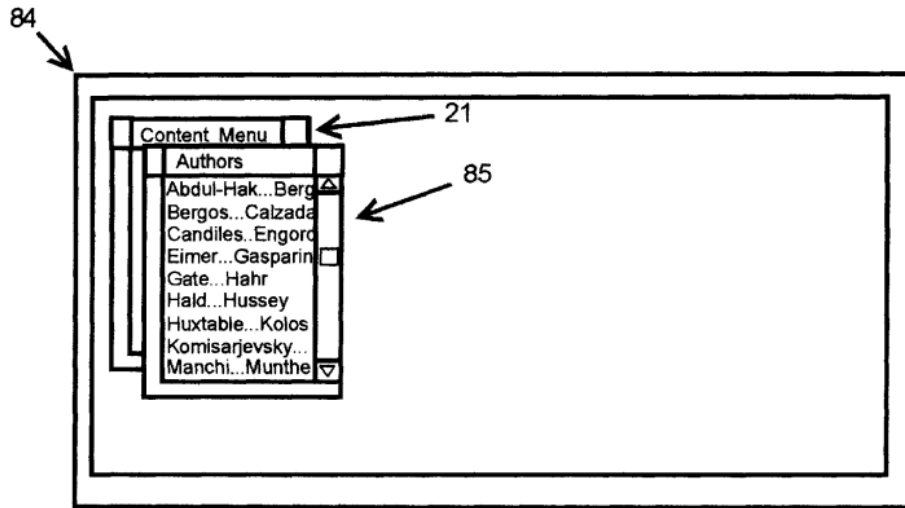


Fig. 7

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.

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 endeavors to ‘provide an efficient and user-friendly method of searching computer databases’ using ‘a search system that efficiently displays information to users.’” Pet. 55 (citing Ex. 1005, 4:4–19). Petitioner asserts that Cochran acknowledges that “it may need to display more items than a pick box can display simultaneously, forcing a user to scroll through options.” *Id.* (citing Ex. 1006, 10:58–65). Petitioner argues that a “POSITA would have appreciated that certain lists in Cochran are extremely voluminous and would benefit from improved navigation methods.” *Id.* at 55–56 (citing Ex. 1006, Fig. 4e; Ex. 1003 ¶¶ 482–485).

Petitioner contends that “Zellweger sought to remedy th[e] same problem.” *Id.* at 56. According to Petitioner, a “POSITA would have recognized that it is difficult for users to scroll through Cochran’s long pick box lists” and “would have looked to Zellweger to improve the usability of the pick boxes” by using Zellweger’s Alphabet or Content Lists instead of Cochran’s scroll bars when the number of entries exceeds what can be presented on a screen. *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 further alleges that other methods for implementing pick boxes for use with “wide ranges” of terms were known in the art. *Id.* (citing Ex. 1006, 10:61–65).

Petitioner contends that Cochran and Zellweger are analogous art because they are “directed to the same field (accessing information in databases), and address similar concepts (making information more easily

accessible using graphical interfaces)” and teach several of the same concepts (e.g., GUIs to access databases) and are both implemented as computer software.” *Id.* (citing Ex. 1006, code (57), 1:14–20, 4:2–57; Ex. 1007, code (57), 1:35–40, 2:30–43; Ex. 1003 ¶¶ 480–481). Petitioner contends that a “POSITA would have appreciated that Cochran’s and Zellweger’s teachings were well-known and complementary to one another.” *Id.*

Petitioner alleges that a “POSITA would have had a high expectation of success in adapting Cochran in view of Zellweger’s teachings of the Alphabet and Content List menus” and that “Cochran is exactly the type of system that Zellweger is intended to improve.” *Id.* at 57–58. Petitioner asserts that “[b]oth Cochran and Zellweger involve displaying database information in a GUI, and thus a POSITA would have understood that altering Cochran to truncate entries like in Zellweger’s List menu would require nothing more than routine programming.” *Id.* at 58.

Petitioner’s proposed motivation to combine Cochran and Zellweger is undisputed at this time since Patent Owner did not file a Preliminary Response.

On the current record, we determine that Petitioner has shown a reasonable likelihood that a POSITA would have had reason to combine Cochran and Zellweger with a reasonable expectation of success.

Claim 1

We proceed to consider the limitations of claim 1 in relation to the disclosures of Cochran and Zellweger.

a) Limitation 1.PRE: 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 the presentation of search terms on a computer terminal ... so that large computer databases can be searched efficiently.’” Pet. 24 (citing Ex. 1005, code (57), 1:30–37, 4:10–12, Figs. 7b, 3a, 4a, 4b, 4d; Ex. 1003 ¶¶ 176–177).

Patent Owner does not dispute Petitioner’s contentions at this time.

Petitioner shows a reasonable likelihood that Cochran discloses claim 1’s preamble.⁴

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 ‘display[s] a list of all available choices’ because otherwise it ‘would be difficult for the user to know how [the] database was organized without the visual presentation’ of the data available in the database.” 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 discloses ‘a method for accessing records from a computer database’ and that ‘[i]nformation is stored in the database as a collection of records, each record having multiple

⁴ Because Petitioner has shown sufficiently 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).

fields (also referred to as indexes or list identifiers) containing the 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 does not dispute Petitioner’s contentions at this time.

Petitioner shows a reasonable likelihood that Cochran discloses limitation 1.A of claim 1.

c) Limitation 1.B: Providing a List

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

Petitioner contends that, “[t]o facilitate database searching, Cochran provides a list of ‘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 discloses that the “list identifiers” are displayed on a GUI and “identify[] the various categories of information” available 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).

Patent Owner does not dispute Petitioner’s contentions at this time.

Petitioner shows a reasonable likelihood 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 (citing Ex. 1005, 9:60–10:4). According to Petitioner, “the selected pick box expands to display ‘search terms’ related to the associated database field.” *Id.* Petitioner further asserts that “[b]y determining which pick box has been selected (and thus needs to be populated with search terms for display) Cochran has received a search selection as required.” *Id.* at 26–27 (citing Ex. 1005, 1:30–47, 6:31–39, 7:9–19, 8:45–47, Figs. 3a–c, 3d (annotated), 4a–4b, 4d–9d; Ex. 1003 ¶¶ 185–187).

Patent Owner does not dispute Petitioner’s contentions at this time.

Petitioner shows a reasonable likelihood that Cochran discloses limitation 1.C of claim 1.

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 in an expanded pick box (*“in the selected database field”*) when Cochran generates the display of the expanded pick box.” Pet. 27 (citing Ex. 1003 ¶¶ 188–193, 201).

Petitioner contends that, in Figure 5d, “Cochran determines that the quantity of entries for ‘Lodging Name’ (*“the selected database field”*) exceeds the number displayable simultaneously and adds a scroll bar.” Pet. 28 (citing Ex. 1005, 10:57–65, Fig. 5d (annotated); Ex. 1003 ¶¶ 188–189). Petitioner further asserts that, “[w]here the quantity of entries

can be displayed simultaneously, Cochran does not display a scroll bar.” *Id.* (citing Ex. 1005, Figs. 3–9). Petitioner alleges that a “POSITA would have understood that Cochran determines the quantity of entries in the database field to determine the screen space required by the list and thus whether a scroll bar is necessary.” *Id.* (citing Ex. 1003 ¶¶ 190–193).

Petitioner contends that, to the extent that Cochran does not teach limitation 1.D, Zellweger does in several ways. Pet. 28 (citing Ex. 1003 ¶¶ 194–201). Petitioner contends that when a user selects a database field, Zellweger determines how many entries are in that field. *Id.* at 29 (citing Ex. 1007, 2:30–35, 4:7–16, Fig. 6a (annotated); Ex. 1003 ¶¶ 195–196). Petitioner states that Zellweger’s “Figure 6 shows a user selecting ‘Authors’ and Zellweger determining that there are 1,231 entries in Authors.” *Id.*

Petitioner contends that Zellweger additionally discloses this limitation when generating a “Content List.” *Id.* (citing Ex. 1003 ¶¶ 197–199). Petitioner asserts that “Zellweger can present an ‘Alphabet List’ or ‘Content List.’” *Id.* (citing Ex. 1007, 4:17–35). Petitioner argues that Zellweger divides its “Content List” into intervals. *Id.* at 29–30 (citing Ex. 1007, Fig. 7). Petitioner states that Zellweger’s “Figure 7 shows intervals listed ‘using the author’s last name as the first and last elements,’” and that “[c]licking on an entry opens a newly generated ‘new list menu that starts with’ the first entry and ends with the last entry in the selected interval.” *Id.* at 30 (citing Ex. 1007, 4:45–53, Fig. 7; Ex. 1003 ¶¶ 198–199). Petitioner further asserts that a user can set a maximum and minimum number of items per list for the Content List. *Id.* (citing Ex. 1005, 2:30–43, 4:26–31, Fig. 6a (annotated)). According to Petitioner, a “POSITA would have understood that Zellweger must determine the quantity of entries to

determine if the minimum or maximum is satisfied.” *Id.* at 30–31 (citing Ex. 1003 ¶¶ 199–201).

Patent Owner does not dispute Petitioner’s contentions at this time.

Petitioner shows a reasonable likelihood that Cochran and Zellweger disclose limitation 1.D of claim 1.

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 acknowledges that displaying ‘more [search terms] . . . than can fit on the display screen simultaneously’ necessitates the use of a scroll bar with ‘scroll buttons’ to ‘scroll[] to display additional search terms.’” Pet. 31 (citing Ex. 1007, 10:48–65, 13:58–14:7, 14:45–49, 15:4–11, 16:15–21). Thus, according to Petitioner, Cochran contemplates adjusting its display based on the quantity of results. *Id.* (citing Ex. 1003 ¶ 203).

Petitioner further asserts that Zellweger discloses methods for displaying voluminous lists. *Id.* Specifically, according to Petitioner, “Zellweger discloses ‘truncating’ the text of 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 Lists’ and ‘Content Lists’ (“displaying the truncated data”). *Id.* (citing Pet. § XI.A.1.e; Ex. 1003 ¶¶ 204–212). Petitioner argues that an “Alphabet List reduces the

entries in the list to a user-defined number of letters and organizes entries into groups based on these letters.” *Id.* Petitioner asserts that Zellweger’s Figure 6b shows truncating “Authors” entries to one letter.” *Id.* at 31–32 (citing Ex. 1007, 4:36–44, Fig. 6b (annotated)). Petitioner contends that “Zellweger determined and reports in parentheses the quantity of database items within each truncated category.” *Id.* at 32.

Alternatively, Petitioner asserts, “Zellweger may display entries in a Content List by truncating entries down to a word or a number of leading characters and organizing the entries into a set of intervals.” Pet. 32–33 (citing Ex. 1007, Fig. 6a (annotated)). Petitioner further avers that “the user can . . . specify the number of items to be displayed ‘per List.’” *Id.* at 33. Petitioner contends that Zellweger’s Figure 7 shows that “entries for the ‘Authors’ database field are truncated to one word length and organized into intervals.” *Id.* (citing Ex. 1005, 4:45–53, Fig. 7 (annotated); Ex. 1003 ¶¶ 204–208). According to Petitioner, the truncated data in the Alphabet List or Content List “represents” each of the authors (“entries”) in the “Authors” field (“selected database field”). *Id.* at 33–34 (citing Ex. 1003 ¶ 209).

Petitioner argues that a “POSITA would have considered it obvious to apply Zellweger’s truncation techniques to Cochran.” *Id.* at 34. Specifically, Petitioner contends that Cochran determines the list size for a pick box and adjusts displays if the list is too large, while Zellweger teaches that the user can specify the minimum and maximum number of items displayed “per List.” *Id.* (citing Ex. 1007, 4:26–31). According to Petitioner, Zellweger also teaches to truncate lists (and entries therein) using an Alphabet List or Content List. *Id.* Petitioner contends that a “POSITA

would have considered it obvious to employ any of these techniques to achieve any user-specified list size.” *Id.* (citing Ex. 1003 ¶¶ 210–212). Petitioner argues that the references together teach truncating “*if the quantity exceed a specified amount*” as claimed. *Id.* (citing Ex. 1007, 4:26–35, Figs. 6a, 7; Pet. § XI.A.1.e).

Patent Owner does not dispute Petitioner’s contentions at this time.

Petitioner shows a reasonable likelihood that the combination of Cochran and Zellweger discloses limitation 1.E of claim 1.

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

Petitioner contends that “Cochran in view of Zellweger discloses or renders obvious truncating the list of entries if the list exceeds a specified number of entries.” Pet. 34 (citing *id.* at § XI.A.1.f). Petitioner asserts that “Cochran in view of Zellweger would truncate when the number of entries exceeds the number of lines available on a display screen or based on some predetermined number selected by the user.” *Id.* Petitioner states that, accordingly, “a POSITA would have understood or found obvious that the combined system displays 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*”). *Id.* at 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 at this time.

Petitioner shows a reasonable likelihood that Cochran discloses limitation 1.F of claim 1.

h) Conclusion for Claim 1

Petitioner shows a reasonable likelihood that a POSITA would have been motivated to combine Cochran and Zellweger with a reasonable expectation of success. *See* § II.D.3. Petitioner also shows a reasonable likelihood that each limitation of claim 1 is taught or at least suggested by the combination of Cochran and Zellweger. *See* §§ II.D.4.a–g.

Patent Owner did not file a Preliminary Response and thus does not dispute Petitioner’s contentions at this time.

Accordingly, on the current record, we determine that Petitioner shows a reasonable likelihood that claim 1 is unpatentable as obvious over the combination of Cochran and Zellweger.

Claim 2

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

Petitioner asserts that “Cochran teaches that the database ‘may be searched by specifying the desired information sought as a ‘search term.’” Pet. 35 (citing Ex. 1005, 1:30–37, 2:25–28, 9:18–22). Petitioner contends that a “POSITA would have understood that selecting Cochran’s search terms in the pick boxes constitutes providing “key words” for searching the database.” *Id.* (citing Ex. 1005, 10:13–18; Ex. 1003 ¶ 218).

Patent Owner does not dispute Petitioner’s contentions for claim 2 at this time.

Petitioner has shown a reasonable likelihood, on the current record, that claim 2 is unpatentable as obvious in view of the combination of Cochran and Zellweger.

Claim 3

Claim 3 is independent. We address Petitioner's contentions for claim 3 below.

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 the preamble of claim 3. Pet. 36 (citing *id.* at § XI.A.1.a (discussing limitation 1.PRE of claim 1); Ex. 1003 ¶ 219).

Patent Owner did not file a Preliminary Response and thus does not dispute Petitioner's contentions.

Petitioner shows a reasonable likelihood that the preamble of claim 3 is disclosed by Cochran in view of Zellweger.⁵

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.* at § XI.A.1.c (discussing limitation 1.B of claim 1); Ex. 1003 ¶ 220).

Patent Owner does not dispute Petitioner's contentions.

Petitioner shows a reasonable likelihood that limitation 3.A of claim 3 is disclosed by Cochran in view of Zellweger.

⁵ 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 4.

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 § 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.* (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.

Petitioner shows a reasonable likelihood that limitation 3.B of claim 3 is disclosed 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.* at § XI.A.1.e (discussing limitation 1.D of claim 1); 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 does not dispute Petitioner’s contentions at this time.

Petitioner shows a reasonable likelihood that limitation 3.C of claim 3 is disclosed by Cochran 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 date 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.* at § XI.A.1.e (discussing limitation 1.E of claim 1); and Pet. § XI.A.3.f (discussing limitation 3.E of claim 3); 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 date” of claim 3, and the “selected database field” of claim 1 and “selected field” of claim 3).

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). On this record, we agree with Petitioner’s assumptions.

Patent Owner does not dispute Petitioner’s contentions.

Petitioner shows a reasonable likelihood that limitation 3.D of claim 3 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.* at § 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 field*”). *Id.* at 39–40 (citing Ex. 1007, 3:66–4:31, Fig. 6b (annotated), Fig. 7).

g) Conclusion for Claim 3

Petitioner shows a reasonable likelihood that a POSITA would have been motivated to combine Cochran and Zellweger with a reasonable expectation of success. *See* § II.D.3. Petitioner also shows a reasonable

likelihood that each limitation of claim 3 is taught or at least suggested by the combination of Cochran and Zellweger. *See* §§ II.D.6.a–f.

Patent Owner did not file a Preliminary Response and thus does not dispute Petitioner’s contentions at this time.

Accordingly, we determine that Petitioner has presented, on the current record, a reasonable likelihood that claim 3 is unpatentable as obvious over the combination of Cochran and Zellweger.

Claim 4

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

Petitioner asserts that “Zellweger splits a list of entries into intervals using ‘Content Lists,’ for which a user may specify the minimum and maximum number of items per list.” Pet. 40 (citing Ex. 1007, code (57), 2:30–43, 4:26–52). According to Petitioner, “Zellweger shows the ‘Minimum’ and ‘Maximum’ settings are plain text inputs.” *Id.* (citing Ex. 1007, Fig. 6a). Petitioner alleges that a “POSITA would have understood that a user may input any number into the fields.” *Id.* (citing Ex. 1003 ¶¶ 235–236). Petitioner avers that the “specified limit is ‘fixed’ when the user sets the minimum items per list to one value and does not change it.” *Id.* (citing Ex. 1003 ¶ 237).

Patent Owner does not dispute Petitioner’s contentions at this time.

Petitioner shows a reasonable likelihood that the subject matter of claim 4 would have been obvious over the combination of Cochran and Zellweger.

Claim 5

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

Petitioner contends that “Zellweger allows a user to set a minimum and maximum number of items per list.” Pet. 41. Specifically, Petitioner contends, “Zellweger describes a variable limit because the minimum value may be changed at will and thus when the value is changed it is ‘variable.’” *Id.* (citing Ex. 1003 ¶¶ 238–239). Petitioner also states that “Cochran teaches that the specified limit may be based on the size of the screen, which is variable.” Pet. 41 (citing *id.* at § XI.A.1.f; Ex. 1003 ¶ 239).

Patent Owner does not dispute Petitioner’s contentions at this time.

Petitioner shows a reasonable likelihood, on the current record, that the subject matter of claim 5 would have been obvious over the combination of Cochran and Zellweger.

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 modifying the list (*e.g.*, with a scroll bar) if the number of entries exceeds that which will fit on a display screen.” Pet. 41 (citing *id.* at §§ XI.A.1.e–f). According to Petitioner, “[w]hat fits on the screen is shown in the list (“*data are displayed on a terminal*”) and the rest are accessible using the scroll bar to show hidden entries.” *Id.* Petitioner asserts that a “POSITA would have understood that Cochran determines how many items fit on the screen simultaneously, which depends on the terminal’s display capabilities

(“wherein the specified limit is determined dynamically, based on a characteristic of the terminal”). *Id.* (citing Ex. 1003 ¶¶ 240–244).

Patent Owner does not contest Petitioner’s contentions at this time.

Petitioner shows, on the current record, a reasonable likelihood that the subject matter of claim 6 would have been obvious over the combination of Cochran and Zellweger.

Claim 7

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

For reasons explained with respect to claim 4 and claim 5, Petitioner asserts that Zellweger discloses that a user “can specify the maximum and minimum” value for the Content List “items per list,” and thus states that they are “user-determined.” Pet. 42 (citing *id.* at §§ XI.A.4–5; Ex. 1007, 4:26–31; Ex. 1003 ¶ 245).

Patent Owner does not dispute Petitioner’s contentions at this time.

Petitioner shows, on the current record, a reasonable likelihood that the subject matter of claim 7 would have been obvious over the combination of Cochran and Zellweger.

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 selects a search term (“receiving a first constraint”). Pet. 42 (citing *id.* at §§ XI.A.1.d and

XI.A.3.c). Petitioner argues that a “POSITA would have understood that the selected search term is a ‘constraint’ because each term narrows the resulting search.” *Id.* (citing Ex. 1005, code (57), 8:45–65; Ex. 1003 ¶¶ 246–247).

According to Petitioner, “[w]hen a user presses the View All button, Cochran ‘locate[s]’ and ‘presents the entire subset of records’ relating to the selection(s).” *Id.* (citing Ex. 1005, 12:66–13:14).

Petitioner further contends that “[e]ach of the search terms is ‘*related to*’ a corresponding ‘*data element in a data field*.’” *Id.* Petitioner asserts, “[f]or example, the price search terms are related to the Price field and so forth for each list item.” *Id.* (citing Ex. 1005, 4:2–9, 4:29–35, 12:44–65, 14:13–15:16, Figs. 4b, 4d–4g, 5b–5f; Ex. 1003 ¶¶ 248–249).

Patent Owner does not dispute Petitioner’s contentions.

Petitioner shows a reasonable likelihood that limitation 15.A of claim 15 is disclosed by Cochran.

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 additional search terms (“*constraints*”).” Pet. 43 (citing *id.* at § XI.A.8.a; Ex. 1003 ¶ 250).

Petitioner argues, “[f]or example, a user may first select a search term ‘Within a City, Boston, MA’ for the list identifier ‘Location’ and *subsequently* select ‘Economy’ as the search term for the list identifier

‘Price’ and other additional constraints (*e.g.*, “Amenities”) as desired.” *Id.* (citing Ex. 1005, 16:9–17:13).

Petitioner further contends that “[r]esults are ‘*generated based on a combination of the first*’ and ‘*subsequent constraints*’ in two ways.” *Id.* Petitioner asserts that “[f]irst, the user’s selected search terms may be applied in combination to arrive at a narrowed list of options in the other pick boxes (*e.g.*, the “Lodging Type”).” *Id.* (citing Ex. 1005, 16:38–17:13, Figs. 8a–9d). Petitioner further argues that “[s]econd, Cochran discloses that the user may ‘activat[e] the View All button 121’ which ‘presents the entire subset of records to the user’ . . . and applies all selected search terms (“*constraints*”) to the search.” *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.

Petitioner shows a reasonable likelihood that limitation 15.B of claim 15 is disclosed by Cochran.

c) Conclusion for Claim 15

Petitioner demonstrates a reasonable likelihood, on the current record, that the subject matter of claim 15 would have been obvious over Cochran in view of Zellweger.

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.* at §§ XI.A.8.a–b (discussing claim 15); Ex. 1005, 8:45–65; Ex. 1003 ¶¶ 255–265). Petitioner contends that Cochran’s Figure 9c shows multiple “*search cycles*.” *Id.* at 44 (citing Ex. 1005, code (57), 12:66–13:13, 14:13–43, 16:39–46, Fig. 9c (annotated)).

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)).

Patent Owner does not dispute Petitioner’s contentions at this time.

Petitioner demonstrates a reasonable likelihood, on the current record, that the subject matter of claim 16 would have been obvious over Cochran in view of Zellweger.

Claim 17

Claim 17 depends from claim 3 and “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 (citing *id.* at §§ XI.A.1.d–e, XI.A.3.b). Petitioner alleges that, “[s]pecifically, Cochran teaches the use of ‘pick boxes’ that use drop down menus to display search terms.” *Id.* (citing Ex. 1005, 7:36–47, 10:13–19,

10:43–11:65; Ex. 1003 ¶¶ 270–274). According to Petitioner, a “POSITA would have understood that the list of search terms is a ‘*representation of the selected data field*’ comprising ‘*one or more elements from the selected data field*’ because it lists the elements from the given data field. *Id.* at 45–46 (citing Ex. 1005, Fig. 3d (annotated), Fig. 5d (annotated)).

Patent Owner does not dispute Petitioner’s contentions at this time.

Petitioner demonstrates a reasonable likelihood, on the current record, that the subject matter of claim 17 would have been obvious over Cochran in view of Zellweger.

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 . . . providing a search result list comprising selected data elements from the data base*”).”

Pet. 47 (citing *id.* at § XI.A.9 (discussing claim 16); Ex. 1005, code (57), 4:29–35, 8:45–64, 13:50–57, 14:64–66, Fig. 4d; Ex. 1003 ¶¶ 275–286). Petitioner asserts that Cochran’s Figures 4a and 4d show two search cycles. *Id.* at 47–48 (citing Ex. 1005, 10:66–11:21, 12:27–43, 13:50–57, 14:13–37, Figs. 3b, 3c, Fig. 4a (annotated), Fig. 4d (annotated)).

Petitioner alleges that the “search terms displayed in the pick boxes are each cycle’s ‘*search result list*.’” Pet. 48 (citing Ex. 1005, code (57), 4:20–50, 8:15–9:22, 12:66–13:13, 15:53–17:13). Petitioner contends that

Cochran discloses that “[t]he search terms contained in the lists are only those terms that are actually available in the database” and that “[e]ach search request will result in a subset of records’ that ‘are then transmitted to . . . the computer terminals’ for display in the pick boxes.” *Id.* (citing Ex. 1005, 6:40–52; Ex. 1003 ¶¶ 276–286). According to Petitioner, Cochran discloses that additional search cycles can be performed using the other pick boxes associated with “Lodging Type,” “Lodging Name,” “Amenities,” and “Price.” *Id.* at 48 (citing Ex. 1003 ¶ 283).

Patent Owner does not dispute Petitioner’s contentions at this time.

Petitioner demonstrates a reasonable likelihood, on the current record, that the subject matter of claim 18 would have been obvious over Cochran in view of Zellweger.

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 for data elements” and that “the user can ‘reset all or part 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), Fig. 5b; Ex. 1003 ¶¶ 287–291). Petitioner asserts that “[w]hen a user clicks ‘Reset 4-7,’ Cochran ‘will clear any search terms previously selected for list identifiers 114-117 [(“Lodging Type,” “Lodging Name,” “Amenities,” and “Price”)] and replace them with default terms.” *Id.* (citing Ex. 1005, 13:14–18). Petitioner further states that “[w]hen a user presses ‘Start Over,’ Cochran will ‘restart the selection process from the beginning.” *Id.* (citing Ex. 1005,

13:19–26). Petitioner alleges that “the user can reset ‘one or more’ of the search cycles with either button.” *Id.* (citing Ex. 1003 ¶¶ 287–291).

Patent Owner does not dispute Petitioner’s contentions at this time.

Petitioner demonstrates a reasonable likelihood, on the current record, that the subject matter of claim 19 would have been obvious over Cochran in view of Zellweger.

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.* at § 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 asserts that “Cochran displays on screen a list of displayed labels and their accompanying pick boxes (“*the determined schema*”).” Pet. 50 (citing *id.* at §§ XI.A.1.c–e, XI.A.3.b, f; Ex. 1003 ¶¶ 293–302). According to Petitioner, “[b]ecause Cochran is meant to be used on ‘a computer terminal or other display device,’ Cochran would obviously need a way to accommodate various display capabilities.” *Id.* (citing Ex. 1005, code (57), 4:10–15, 6:11–12, Fig. 1). Petitioner further avers that “Cochran discloses various ‘computer terminal[s],’ each with its own ‘display device’

that can display the labels and pick boxes.” *Id.* (citing Ex. 1005, 6:11–12, Fig. 1).

Petitioner asserts that “[t]o accommodate various display devices, Cochran must decide whether to allow the user to scroll using the scroll bars on screen. For example, when a terminal’s display device can show everything simultaneously, Cochran displays a bar with no scroll bar handle.” *Id.* at 50–51 (citing Ex. 1005, Fig. 4a (annotated)).

According to Petitioner, a “POSITA would have understood and found obvious, however, that when Cochran cannot display all labels and accompanying pick boxes on one page, Cochran would display a scroll bar including a handle.” *Id.* at 50–51 (citing Ex. 1003 ¶¶ 295–300). Petitioner asserts that “[t]his is exactly what Cochran discloses for other elements such as pick boxes.” *Id.* at 51–52 (citing *id.* at § XI.A.1.e; Ex. 1005, Fig. 4e (annotated)).

Petitioner contends that “[t]o accomplish this, 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”*). *Id.* at 52 (citing Ex. 1003 ¶¶ 301–302).

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.* at §§ 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 regarding claim 20 at this time.

Petitioner demonstrates a reasonable likelihood, on the current record, that the subject matter of claim 20 would have been obvious over Cochran in view of Zellweger.

Claim 27

Claim 27 depends from claim 3 and recites that the method “further comprising 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 regarding claim 27 at this time.

Petitioner demonstrates a reasonable likelihood, on the current record, that the subject matter of claim 27 would have been obvious over Cochran in view of Zellweger.

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’s system can be coupled to a server ‘accessed through a communication medium such as the Internet.’” Pet. 53 (citing Ex. 1003, 5:39–49). According to Petitioner, “[i]n one embodiment, the system is accessed through an Internet ‘Web Page addressed at ‘http://travelsearch.com.’” *Id.* (citing Ex. 1005, 4:65–67, 6:6–64, 8:45–47, Fig. 1). Petitioner asserts that the “server hosts the website and database.” *Id.* Petitioner argues that a “POSITA would have understood that because Cochran may be accessed on an Internet website, and it stores its data in ‘database 712,’ the database and Internet website are ‘coupled’ together.” *Id.* at 53–54 (citing Ex. 1003 ¶¶ 309–311).

Patent Owner does not dispute Petitioner’s contentions regarding claim 28 at this time.

Petitioner demonstrates a reasonable likelihood, on the current record, that the subject matter of claim 28 would have been obvious over Cochran in view of Zellweger.

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 is implemented in software (a ‘webserver’) on a server that also 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.* at § XI.A.15 (discussing claim 28); Ex. 1003 ¶¶ 312–313). Petitioner asserts that the “webserver on Cochran’s ‘server’ is a ‘node in a telecommunications network.’” *Id.* Petitioner states “[t]hat node is coupled to the database, which is also hosted on Cochran’s ‘server.’” *Id.* Petitioner contends that “Cochran’s webserver is accessed via the Internet, which a POSITA would understand is a ‘telecommunications network.’” Pet. 54 (citing *id.* at § XI.A.15 (discussing claim 28); Ex. 1003 ¶¶ 312–313).

Patent Owner does not dispute Petitioner’s contentions regarding claim 29 at this time.

Petitioner demonstrates a reasonable likelihood, on the current record, that the subject matter of claim 29 would have been obvious over Cochran in view of Zellweger.

Claim 30

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

Petitioner contends that “Cochran discloses accessing database information via a GUI on a web page displayed in a Web browser (*‘the database is coupled to a terminal for displaying the data’*).” Pet. 54 (citing Ex. 1005, code (57), 6:31–39). 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’*).” *Id.* at 54–55 (citing Ex. 1005, 7:9–18). Petitioner argues that “Cochran shows that the database data is displayed in a GUI on the computer terminal.” *Id.* at 55 (citing Ex. 1005, Figs. 3a–10b). Petitioner contends that a “POSITA would have understood that the database is coupled or connected to the computer

terminal because ‘the server 710 transmits information . . . to the user’s computer 720,’ . . . the server hosts the database, and the computer is the ‘terminal.’” *Id.* (citing Ex. 1005, 6:31–39, 7:9–18; Ex. 1003 ¶¶ 314–317).

Patent Owner does not dispute Petitioner’s contentions regarding claim 30 at this time.

Petitioner demonstrates a reasonable likelihood, on the current record, that the subject matter of claim 30 would have been obvious over Cochran in view of Zellweger.

Conclusion for Ground 1

Petitioner has shown a reasonable likelihood that a POSITA would have been motivated to combine Cochran and Zellweger with a reasonable expectation of success. *See* § II.D.3. Petitioner has also shown a reasonable likelihood 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. *See* §§ II.D.4–20. Patent Owner did not file a Preliminary Response and thus does not dispute Petitioner’s contentions at this time.

Accordingly, we determine that Petitioner has presented, on the current record, a reasonable likelihood that claims 1–7, 15–19, and 27–30 are unpatentable as obvious over the combination of Cochran and Zellweger.

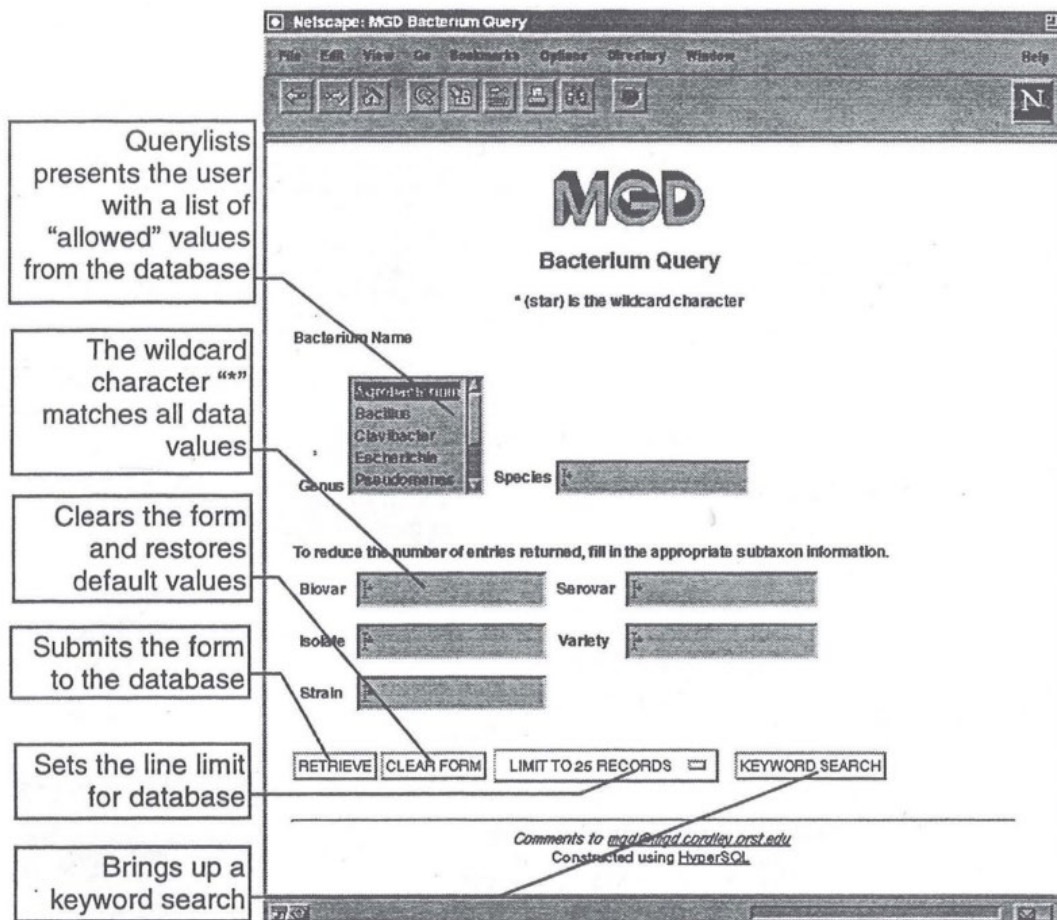
E. Ground 2: Obviousness over HyperSQL and Zellweger

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).

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]ueylists 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 and Zellweger*

Petitioner contends that a POSITA would have been motivated to combine HyperSQL and Zellweger, with a high expectation of success, and alleges that the prior art references are analogous. Pet. 58, 80–82 (citing Ex. 1003 ¶¶ 318–320).

Patent Owner did not file a Preliminary Response and thus does not dispute Petitioner’s contentions at this time.

After reviewing the current record, we determine that Petitioner shows a reasonable likelihood that a POSITA would have been motivated to combine the prior art references with a reasonable expectation of success.

3. *Claims 1–5, 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 does not dispute Petitioner’s contentions.

After reviewing the current record, we determine that Petitioner shows a reasonable likelihood that the limitations of claims 1–5, 7, 15–19, and 27–30 are disclosed by the combination of HyperSQL and Zellweger.

4. *Conclusion for Ground 2*

Petitioner shows a reasonable likelihood 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.

F. 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.

1. *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 1⁶.

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

⁶ We use the actual page numbering of the textbook rather than Petitioner’s Bates numbering.

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.*

2. *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).

Patent Owner did not file a Preliminary Response and thus does not contest Petitioner’s contentions at this time.

After reviewing the current record, we determine that Petitioner shows a reasonable likelihood that a POSITA would have been motivated to combine HyperSQL, Zellweger, and Microsoft Access with a reasonable expectation of success.

3. *Claims 21–23*

Petitioner contends that the combination of HyperSQL, Zellweger, and Microsoft Access discloses the limitations of claims 21–23. Pet. 82–86 (citing Ex. 1003 ¶¶ 428–451).

Patent Owner does not dispute Petitioner’s contentions at this time.

After reviewing the current record, we determine that Petitioner shows a reasonable likelihood that the limitations of claims 21–23 are disclosed by the combination of HyperSQL, Zellweger, and Microsoft Access.

4. *Conclusion for Ground 3*

Petitioner shows a reasonable likelihood that the subject matter of claims 21–23 would have been obvious over the combination of HyperSQL, Zellweger, and Microsoft Access.

G. 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).

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.

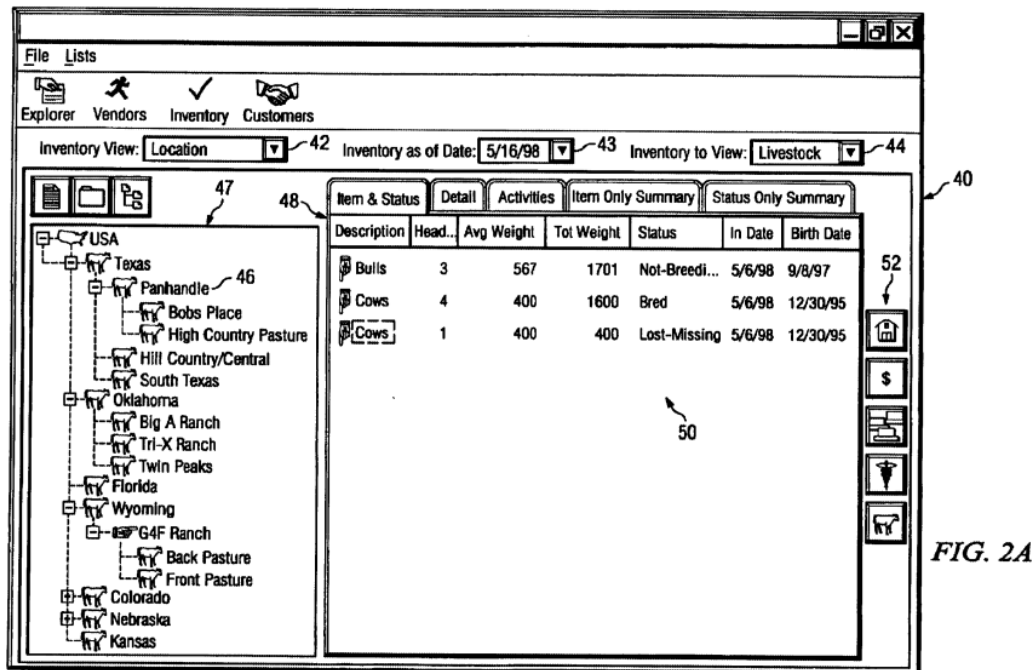


Figure 2A shows a graphical user interface with a pull-down list 42 to select an inventory view, pull-down list 43 to display date, and pull-down list 44 to select which inventory to display. *Id.* at 4:48–60. The pull-down lists limit or focus the data displayed in hierarchical tree data structure 46 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).

Patent Owner did not file a Preliminary Response and thus does not dispute Petitioner’s contentions at this time.

On the current record, Petitioner shows a reasonable likelihood that a POSITA would have been motivated to combine HyperSQL, Zellweger, Microsoft Access, and Janes with a reasonable expectation of success.

3. *Claim 25*

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).

Patent Owner does not dispute Petitioner’s contentions at this time.

After reviewing the current record, we determine that Petitioner has presented a reasonable likelihood that the limitations of claim 25 are disclosed by the combination of HyperSQL, Zellweger, Microsoft Access, and Janes.

4. *Conclusion for Ground 4*

Petitioner shows a reasonable likelihood that the subject matter of claim 25 would have been obvious over the combination of HyperSQL, Zellweger, Microsoft Access, and Janes.

H. 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).

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).

Patent Owner did not file a Preliminary Response and thus does not dispute Petitioner’s contentions at this time.

On the current record, Petitioner shows a reasonable likelihood that a POSITA would have been motivated to combine Cochran, Zellweger, Janes, and Spiegel with a reasonable expectation of success.

3. *Claim 26*

Petitioner contends that the combination of Cochran, Zellweger, Janes, and Spiegel discloses the limitations of claim 26. Pet. 94–96 (citing Ex. 1003 ¶¶ 464–477).

Patent Owner does not dispute Petitioner’s contentions at this time.

After reviewing the current record, we determine that Petitioner has presented a reasonable likelihood that the limitations of claim 26 are all taught or suggested by the combination of Cochran, Zellweger, Janes, and Spiegel.

4. *Conclusion for Ground 5*

Petitioner shows a reasonable likelihood that the subject matter of claim 26 would have been obvious over the combination of Cochran, Zellweger, Janes, and Spiegel.

III. CONCLUSION

In light of the foregoing, based on the current record and at this stage of the proceeding, we are persuaded that Petitioner demonstrates a reasonable likelihood of prevailing on its assertions that at least one of claims 1–7, 15–23, and 25–30 of the ’720 patent would have been obvious under 35 U.S.C. § 103 based on the grounds set forth in the Petition. Accordingly, we institute trial for all challenged claims on all grounds asserted by Petitioner. *See* 37 C.F.R. § 42.108(a) (“When instituting . . . review, the Board will authorize the review to proceed on all of the challenged claims and on all grounds of unpatentability asserted for each claim”).

Our factual findings, conclusions of law, and determinations at this stage of the proceeding are preliminary, and based on the evidentiary record

developed thus far. At this stage of the proceeding, we have not made a final determination with respect to the patentability of the challenged claims or to the construction of any claim term.

IV. ORDER

For the foregoing reasons, it is

ORDERED that pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–7, 15–23, and 25–30 of the '720 patent is hereby instituted on all challenges to patentability set forth in the Petition; and

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

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