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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte QI CHENG, JOHN F. HORNIBROOK,
TING Y. LEUNG, XIN WU,
DANIEL C. ZILIO, and
CALISTO P. ZUZARTE

Appeal 2015-001419
Application 13/361,800
Technology Center 2100

Before ST. JOHN COURTENAY III, JAMES R. HUGHES, and
MELISSA A. HAAPALA, *Administrative Patent Judges*.

COURTENAY, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

This is an appeal under 35 U.S.C. § 134(a) from the Examiner's Final Rejection of claims 8–27. Claims 1–7 are cancelled. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

Invention

The disclosed and claimed invention on appeal relates to techniques “for generating statistical views in a database system.” Spec. ¶ 11.

Representative Claim

8. A computer program product of statistical view refinement based on constraints in order to reduce a processing cost incurred in maintaining statistical views in a database management system, the computer program product comprising:

a computer-readable memory including hardware and having computer-readable program code embodied therewith, the computer-readable program code executable by one or more computer processors to:

responsive to receiving a request to execute a database workload, evaluating the database workload in order to generate a join graph;

identify one or more constraints pertaining to executing the database workload;

[L1] *evaluate the join graph in order to generate a plurality of statistical view candidates; and*

[L2] *programmatically refine the statistical view candidates by operation of one or more computer processors when executing the computer-readable program code and based on the identified one or more constraints in order to generate a set of refined statistical view candidates, wherein statistical view generation from the plurality of statistical view candidates is restricted to the set of refined statistical view candidates.*

(Contested limitations L1 and L2 are emphasized.)

Rejection

Claims 8–27 are rejected under 35 U.S.C. § 103(a) as being obvious over the combined teachings and suggestions of El-Helw et al. (US 7,668,804 B1, Feb. 23, 2010) (“El-Helw”), in view of Kandil et al. (US 2007/0220058 A1, Sept. 12, 2007) (“Kandil”).

Grouping of Claims

We decide the appeal of independent claims 8 and 15 on the basis of representative claim 8. To the extent Appellants have not advanced separate, *substantive* arguments for the remaining claims on appeal, such arguments are considered waived. *See* 37 C.F.R. § 41.37(c)(1)(iv).

ANALYSIS

We have considered all of Appellants' arguments and any evidence presented. We find Appellants' arguments unpersuasive for the reasons discussed *infra*. We adopt as our own: (1) the findings and legal conclusions set forth by the Examiner in the action from which this appeal is taken, and (2) the findings, legal conclusions, and explanations set forth in the Answer in response to Appellants' arguments (Ans. 4–30). We highlight and address specific findings and arguments for emphasis in our analysis below.

Rejection of Independent Claim 8 under 35 U.S.C. § 103(a)

Issue: Under 35 U.S.C. § 103(a), did the Examiner err in finding the cited combination of El-Helw and Kandil would have taught or suggested contested limitations L1 and L2, within the meaning of independent claim 8, under a broad but reasonable interpretation? ¹

¹ We give the contested claim limitations the broadest reasonable interpretation consistent with the Specification. *See In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997); *Cf. with Spec.* ¶ 71 (“While the foregoing is directed to embodiments of the present invention, other and further embodiments of the invention may be devised without departing from the basic scope thereof, and the scope thereof is determined by the claims that follow.”).

Regarding independent claim 8, Appellants contend:

Respectfully, *El-Helw* does not disclose at least the following limitations recited in independent claim 8:

[L1] [e]valuate the join graph in order to generate a plurality of statistical view candidates; and

[L2] programmatically refine the statistical view candidates . . . based on the identified one or more constraints in order to generate a set of refined statistical view candidates, wherein statistical view generation from the plurality of statistical view candidates is restricted to the set of refined statistical view candidates.

App. Br. 15.

In support, Appellants contend:

The portions of *El-Helw* cited by the Office generally discuss choosing a subset of candidate statistical views that maximizes a cost/benefit ratio, *see, e.g., El-Helw*, col. 12, lines 23–28. At the same time, even assuming, *arguendo*, that the candidate statistical views in *El-Helw* correspond to the recited statistical view candidates, *El-Helw* is still silent on any join graph being evaluated in order to generate the candidate statistical views to which statistical view generation from the statistical view candidates is restricted. Further, *Kandil* does not cure these deficiencies of *El-Helw*. Therefore, *El-Helw*, even in view of *Kandil*, does not teach or suggest at least the underlined limitations above.

Id.

Limitation L1 of Independent Claim 8

Regarding Appellants' contention that "*El-Helw* is still silent on any join graph being evaluated in order to generate the candidate statistical views to which statistical view generation from the statistical view candidates is restricted," we find unpersuasive Appellants' assertion that "*Kandil* does not cure these deficiencies of *El-Helw*." App. Br. 15.

We note the Examiner (Final Act. 3) finds El-Helw (cols. 6–7) teaches the use (i.e., evaluation) of *joins* regarding database queries for the purpose of “generat[ing] a plurality of statistical view candidates,” as claimed (claim 8, contested limitation L1). El-Helw describes, in pertinent part:

In one embodiment, *query optimizer 308* can be a bottom-up optimizer that generates plans that transform an *n-way join* into a sequence of *two-way joins* using binary *join* operators. . . . The candidate *statistical view set* will contain the corresponding definitions for each of the partial queries that contain the relevancy, local, and *join predicates* appropriate for the *partial queries*.

El-Helw, col. 6, l. 59 – col. 7, l. 2 (emphasis added).

Although Appellants recite the claim language (App. Br. 15), Appellants do not substantively argue that El-Helw does not teach a join graph.² The Examiner (Ans. 4) considers the description in Appellants’ Specification (¶ 49),³ and adopts a claim construction for the claim 8 term “join graph”: A “join graph is nothing more than identifying joins in a workload which is a query statement.” (Ans. 4). Appellants have not rebutted the Examiner’s claim interpretation. Therefore, on this record, we

² See *In re Lovin*, 652 F.3d 1349, 1357 (Fed. Cir. 2011) (“[W]e hold that the Board reasonably interpreted Rule 41.37 to require more substantive arguments in an appeal brief than a mere recitation of the claim elements and a naked assertion that the corresponding elements were not found in the prior art.”).

³ See Spec. ¶49 (“At step 320, the statistical view advisor 152 generates a join graph based on the received workload. The join graph is subsequently used in identifying which joins are used in conjunction with one another, to form one or more statistical views.”).

are not persuaded the Examiner's reading is overly broad, unreasonable, or inconsistent with Appellants' Specification. ⁴

We note El-Helw describes joins (col. 10, l. 59) in the context of graph structure 460 (*see* El-Helw, col. 10, l. 67– col. 11, l. 1 (“e.g., a sample graph structure is shown as graph 460 of FIG. 4C”). See also, El-Helw, col. 11, ll. 7–9: “Each group V_o can contain the views that involve the same set of tables and have the same *join predicates* between these tables.” (Emphasis added). Because we find join operations of relational database tables are notoriously well known in the art (as evidenced by El-Helw, e.g., col. 1, ll. 24–25 ⁵), and because Appellants fail to substantively address the Examiner's specific findings (Ans. 4–6), on this record, we are not persuaded the Examiner erred regarding contested limitation L1.

Limitation L2 of Independent Claim 8

The Examiner finds El-Helw (col. 12, ll. 23–35) teaches or suggests contested limitation L2 of claim 8:

programmatically refine the statistical view candidates . . .
based on the identified one or more constraints in order to
generate a set of refined statistical view candidates, wherein
statistical view generation from the plurality of statistical view
candidates is restricted to the set of refined statistical view
candidates.

⁴ Because “applicants may amend claims to narrow their scope, a broad construction during prosecution creates no unfairness to the applicant or patentee.” *In re ICON Health and Fitness, Inc.*, 496 F.3d 1374, 1379 (Fed. Cir. 2007) (citation omitted).

⁵ *See* El-Helw, e.g., col. 1, ll. 24–25 (“The performance of a query plan is determined largely by the order in which the tables are joined.”).

Final Act. 4. Appellants fail to substantively address these findings, and merely assert that El-Helw does not teach the recited limitation. *See* App. Br. 15. Because Appellants fail to address the Examiner’s specific findings, on this record, we are not persuaded the Examiner erred regarding contested limitation L2.

Combinability under §103

Appellants additionally contend the Examiner has improperly combined El-Helw and Kandil: “the Office merely posits that *El-Helw* can be modified using *Kandil*, on the basis of generally desirable features – such as increasing usability – and without any specific explanation of how the proposed combination of *El-Helw* and *Kandil* would synergistically interoperate to produce the claimed embodiment.” App. Br. 16.

However, the Supreme Court guides: “[I]f a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007). Moreover, “[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *Id.* at 416. “If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability.” *Id.* at 417.

This reasoning is applicable here. On this record, we find the Examiner provides sufficient articulated reasoning with some rational underpinning to support the legal conclusion of obviousness (Final Act. 4). Moreover, we find El-Helw and Kandil are analogous art to each other, and to the claimed invention. *See, e.g.*, El-Helw, Abstract:

A workload to be handled by a database system can be identified. The workload can include at least one query that the database system is to handle. A set of at least one candidate statistical views (statviews) to be utilized when optimizing the workload can be enumerated. A benefit value and a cost value of the each of the enumerated candidate statistical views relative to the entire workload can be computed.

See, e.g., Kandil, Abstract:

A method, computer program product, and system for managing statistical views in a database system are provided. The method, computer program product, and system provide for collecting data relating to optimization and execution of a workload in the database system and automatically generating a set of one or more statistical views based on the collected optimization and execution data.

Appellants do not point to any evidence of record that shows combining the references in the manner proffered by the Examiner would have been “uniquely challenging or difficult for one of ordinary skill in the art” or would have “represented an unobvious step over the prior art.”

Leapfrog Enters., Inc. v. Fisher-Price, Inc., 485 F.3d 1157, 1162 (Fed. Cir. 2007) (citing *KSR*, 550 U.S. at 418). Nor have Appellants provided objective evidence of secondary considerations which our reviewing court guides “operates as a beneficial check on hindsight.” *Cheese Systems, Inc. v. Tetra Pak Cheese and Powder Systems, Inc.*, 725 F.3d 1341, 1352 (Fed. Cir. 2013).

Therefore, we find unavailing Appellants’ contention “the proposed modification of El-Helw using Kandil is merely conclusory.” App. Br. 16.

On this record, and based upon a preponderance of the evidence, we are not persuaded of error regarding the Examiner’s ultimate legal conclusion of obviousness regarding contested limitations L1 and L2 of

representative claim 8. Accordingly, we sustain the Examiner's rejection of representative claim 8, and the rejection of grouped independent claim 15 (not separately argued), which falls with claim 8 (*see* Grouping of Claims, *supra*).

Dependent Claims 9–14 and 16–27

Regarding the remaining dependent claims, for which Appellants purport to advance separate arguments, we find the Examiner provides sufficiently detailed mappings of the claim terms to the corresponding features found in the cited El-Helw and Kandil references to support the prima facie case of obviousness. The Federal Circuit guides, “the prima facie case is merely a procedural device that enables an appropriate shift of the burden of production.” *Hyatt v. Dudas*, 492 F.3d 1365, 1369 (Fed. Cir. 2007).

[A]ll that is required of the office to meet its prima facie burden of production is to set forth the statutory basis of the rejection and the reference or references relied upon in a sufficiently articulate and informative manner as to meet the notice requirement of [35 U.S.C.] § 132. As the statute itself instructs, the examiner must “notify the applicant,” “stating the reasons for such rejection,” “together with such information and references as may be useful in judging the propriety of continuing prosecution of his application.”

In re Jung, 637 F.3d 1356, 1363 (Fed. Cir. 2011).

Here, the Examiner's burden of establishing a prima facie case is met by “adequately explain[ing] the shortcomings [the USPTO] perceives so that the applicant is properly notified and able to respond.” *Hyatt*, 492 F.3d at 1370. In reviewing the record, we find the Examiner has met the notice requirement of 35 U.S.C. § 132 by providing a detailed statement of rejection with sufficiently clear mappings and explanations. Final Act. 5—

17. We note it is only “when a rejection is so uninformative that it prevents the applicant from recognizing and seeking to counter the grounds for rejection” that the prima facie burden has not been met and the rejection violates the minimal requirements of 35 U.S.C. § 132. *Chester v. Miller*, 906 F.2d 1574, 1578 (Fed. Cir. 1990).

Such is not the case here. By making specific factual findings regarding the dependent claims, and satisfying the notice requirement of 35 U.S.C. § 132 to establish the prima facie case, the Examiner shifted the burden of production to Appellants to go forward with evidence showing why such factual findings are erroneous—a burden we find Appellants have failed to meet.

In traversing the Examiner’s rejection of the remaining dependent claims, we observe Appellants adopt a *pattern of argument* in the Brief which: (1) reproduces the portions of El-Helw and/or Kandil cited by the Examiner, (2) merely asserts the cited portions of the references are “silent” regarding the contested claim limitations, and (3) fails to substantively respond to the specific findings set forth by the Examiner (Final Act. 5–17) for each contested dependent claim.

In the Answer (6–30), the Examiner provides a detailed responsive explanation to Appellants’ nominal arguments regarding the contested dependent claims. Appellants have not further responded to these explanations, because no Reply Brief was filed.

Because Appellants fail to provide any persuasive evidentiary basis to support their assertions regarding the remaining dependent claims, we find Appellants’ arguments are merely conclusory, and do not meet the burden of showing error in the Examiner’s prima facie case of obviousness. App. Br.

17–42. To the extent Appellants reproduce the record by copying the portions of the references cited by the Examiner into the Brief, and then merely assert the cited portions are “silent” regarding the claim language, we find Appellants fail to advance separate *substantive*, persuasive arguments explaining *why* the Examiner has erred. Mere conclusory statements that are unsupported by factual evidence are entitled to little probative value. *In re Geisler*, 116 F.3d 1465, 1470 (Fed. Cir. 1997); *In re De Blauwe*, 736 F.2d 699, 705 (Fed. Cir. 1984).

Therefore, on this record, we find Appellants have failed to *substantively* traverse the merits of the rejection of the contested dependent claims, by specifically explaining *why* the Examiner erred. Under our PTAB procedural rule: “A statement which merely points out what a claim recites will not be considered an argument for separate patentability of the claim.” 37 C.F.R. § 41.37(c)(1)(iv).

If an Appellant fails to present arguments on a particular issue—or, more broadly, on a particular rejection—the Board will not, as a general matter, unilaterally review those uncontested aspects of the rejection. *Ex parte Frye*, 94 USPQ2d 1072, 1075 (BPAI 2010) (precedential) (citing, *inter alia*, *Hyatt v. Dudas*, 551 F.3d 1307, 1313–14 (Fed. Cir. 2008) (the Board may treat arguments Appellant failed to make for a given ground of rejection as waived)).

Therefore, after considering the totality of the record, including the evidence relied upon by the Examiner, with due consideration to the insufficiency of the arguments presented, we find Appellants have not shown error in the Examiner’s *prima facie* case of obviousness. On this record, we find a preponderance of the evidence supports the Examiner’s

Appeal 2015-001419
Application 13/361,800

underlying factual findings and ultimate legal conclusion of obviousness for all contested claims on appeal. Accordingly, we sustain the Examiner's rejection of claims 8–27 under § 103(a).

DECISION

We affirm the Examiner's rejection of claims 8–27 under 35 U.S.C. § 103(a).

No time for taking any action connected with this appeal may be extended under 37 C.F.R. § 1.136(a)(1). *See* 37 C.F.R. § 41.50(f).

AFFIRMED