

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 19

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte THOMAS E. HINTZ and KERRY C. TENBERG

Appeal No. 1997-0243
Application 08/168,976

ON BRIEF

Before THOMAS, HAIRSTON and LALL, Administrative Patent Judges.

LALL, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection¹ of claim 1, the sole pending claim.

¹ An amendment after the final rejection was filed [Paper No. 8] and was approved for entry by the Examiner [Paper No. 9].

The disclosed invention uses a novel SORT record for each primary key and each foreign key, collating SORT records, in a single phase, so as to group together those records for each primary key for subsequent diagnostic analysis. This is an improvement on the prior art methods of the two-phase DATA CHECK operations since the invention uses reading data-record and index-entry data in parallel and eliminates the need to create a working data set of the information being checked. The invention is further illustrated by the following claim.

1. A single-phase method of checking DB2 referential integrity, comprising the steps of:

(a) extracting, in parallel, (1) all of zero or more instances of one or more specified foreign keys, referred to as FK occurrences, and (2) zero or more instances of one or more specified primary keys, referred to as PK occurrences;

(b) constructing a SORT record for each said FK occurrence, referred to as an FK SORT record, and a SORT record for each said PK occurrence, referred to as a PK SORT record;

(c) collating the FK SORT records with the PK SORT records into a single sequence of SORT records to group together the PK SORT records for each primary key, with the respective FK SORT records for each of any foreign key associated with each said primary key; and

(d) performing a specified diagnosis routine utilizing said single sequence of SORT records as an input.

The references relied on by the Examiner are:

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| Haderle et al. (Haderle) | 4,933,848 | Jun. 12, 1990 |
| Crus et al. (Crus) | 5,133,068 | Jul. 21, 1992 |

Knuth, Donald E., "The Art of Computer Programming", Addison-Wesley Publishing Company, Reading, Massachusetts, pgs. 159-173 (1973). (Knuth)

Claim 1 stands rejected under 35 U.S.C. § 103 over Crus and Knuth, or over Haderle² alone.

Reference is made to Appellants' briefs³ and the Examiner's answer⁴ for their respective positions.

OPINION

We have considered the record before us, and we will reverse the rejection of claim 1.

In rejecting claim 1 under 35 U.S.C. § 103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine,

² A new ground of rejection, based on Haderle, was added in the Examiner's answer.

³ A reply brief was filed as paper no. 15 and a supplemental reply brief as paper no. 17. The Examiner presented a supplemental answer, paper no. 16, in response to the reply brief. However, the Examiner entered the supplemental reply brief without any further response [paper no. 18].

⁴ A supplemental answer was mailed as paper no. 16.

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837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the Examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (CCPA), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985), cert. denied, 475 U.S. 1017 (1986); ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the Examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

Furthermore, the Federal Circuit states that "[the] mere

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fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." In re Fitch, 972 F.2d 1260, 1266 n.14, 23 USPQ2d 1780, 1783-84 n.14 (Fed. Cir. 1992), citing In re Gordon, 773 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). "Obviousness may not be established using hindsight or in view of the teachings or

suggestions of the inventor". Para-Ordnance Mfg. v. SGS Importers Int'l, 73 F.3d 1087, 37 USPQ 2d at 1239 (Fed. Cir. 1995), citing W. L. Gore & Assocs., v. Garlock, Inc., 721 F.2d at 1551, 1553, 220 USPQ at 311, 312-13 (Fed. Cir. 1983).

Rejection using Crus and Knuth

After discussing Crus and Knuth individually, the Examiner asserts [answer, page 5] that "it would have been obvious ... to incorporate the collating of Knuth in the single enforcement procedure of Crus for defining referential constraints between data tables"

Appellants argue [brief, pages 7 to 9] about the

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distinction of the invention over Crus and Knuth and conclude that "[i]n view of the significant technical distinctions between the invention of claim 1 and Crus et al., the Examiner's assertion that Crus et al. discloses the 'claimed extracting of the primary and foreign keys' is believed to be incorrect. This incorrect assertion is not made correct by combining it with the generic 'sort' teaching of Knuth." [Id. 9].

After reviewing the further response by the Examiner [answer, pages 7 to 8] and Appellants' arguments [reply brief, page 3], we are of the view that claim 1 calls for a method of creating a specific type of data structure involving the steps of "extracting, in parallel, . . .," "constructing a SORT record . . .," and "collating the FK SORT records . . .". We do not find these steps in either of these references or their combination. Instead, Crus states that "[e]ach relationship descriptor contains a complete description of a referential constraint, . . . The use of meta-data descriptors facilitates . . . speedy enforcement of the constraints by a single, shared procedure . . ." [Abstract]. The Examiner has not convinced us how the teachings of Crus correspond to the claimed steps of

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creating the particular type of data structure. Furthermore, Knuth does not cure this deficiency. Therefore, we do not sustain the obviousness rejection of claim 1 over Crus and Knuth.

Rejection using Haderle

The Examiner asserts [answer, page 6] that "Haderle substantially teaches the steps of the claimed invention except does not explicitly indicate a single-phase integrity checking. ... It would have been obvious ... to consider the method of Haderle a single phase method because Haderle [sic, Haderle] teaches that, 'it is a matter of design choice', to update the primary indexes in a load phase or a subsequent phase (line[s] 44-50 of col. 6)."

Appellants argue that "[t]he mere fact that Haderle requires a load phase (i.e., [the] use of working data set) distinguishes

the claimed single pass method from Haderle" [reply brief, page 6].

In response, the Examiner points to col. 12 and col. 7 of Haderle to support his position. Appellants counter

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[supplemental reply brief, pages 3 to 6] that Haderle's method of checking the integrity of data is different from the claimed method.

We have reviewed the Examiner's citations of col. 12 and col. 7. Col. 12, lines 19 to 24 of Haderle state that "[t]he deferred method extracts foreign key values, then sorts them to allow referential integrity checking" (Emphasis added). Col. 7, lines 23 to 27 of Haderle further state that "the SORT phase 26 sorts the key data set 50 ... loaded in Data Load phase 24, into a sorted key data [set] 68 set (sic) which is optimal for index updating and efficient checking of referential constraints" (emphasis added).

We opine that Haderle is a multi-phase method in contrast to the claimed single-phase process. The Examiner's assertion that it is a mere design choice to come up with the claimed steps of the claimed single-phase method of data-integrity checking using Haderle's quoted teachings is not tenable. Therefore, we do not sustain the Examiner's obviousness rejection of claim 1 over Haderle.

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In conclusion, the Examiner's decision rejecting claim 1
under 35 U.S.C. § 103 is reversed.

REVERSED

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| | JAMES D. THOMAS |) | |
| | Administrative Patent Judge |) | |
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| | KENNETH W. HAIRSTON |) | BOARD OF |
| PATENT | Administrative Patent Judge |) | APPEALS AND |
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| | PARSHOTAM S. LALL |) | |
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