

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte PAUL KALPATHY and MIKE JORDA

Appeal 2008-0013
Application 09/985,763
Technology Center 2600

Decided: June 26, 2008

Before MAHSHID D. SAADAT, ROBERT E. NAPPI,
and MARC S. HOFF, *Administrative Patent Judges*.

SAADAT, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

This is a decision on appeal under 35 U.S.C. § 134(a) from the Examiner's Final Rejection of claims 1-25, which are all of the claims pending in this application. We have jurisdiction under 35 U.S.C. § 6(b).

Appellants invented an apparatus and the related method for high performance switching in local area communications networks to be implemented on a semiconductor substrate. An understanding of the invention can be derived from a reading of independent claim 1, which is reproduced as follows:

1. A table search device comprising:

a table having a plurality of entries;

a cache having a subset of entries of said plurality of entries of said table; and

a search engine configured to search said cache in a first number of search cycles and then search said table in a second number of search cycles based on search results of said cache, said search engine connected to said table and said cache.

The Examiner relies on the following prior art references:

Michels	US 6,453,358 B1	Sep. 17, 2002 (filed Sep. 6, 2000)
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Appellants' Admitted Prior Art (APA), Specification ¶ [0055].

The rejections as presented by the Examiner are as follows:

Claims 1, 2, 4, 6-8, 10, 12, 13, 15-17, 19, and 21 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Michels.

Claims 3, 5, 9, 11, 14, 18, and 20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Michels.

Claims 22-25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Michels in view APA.

We make reference to the Briefs and Answer for the arguments provided by Appellants and the Examiner and the respective details. Only

those arguments actually made by Appellants have been considered in this decision. Arguments which Appellants could have made but did not make in the Briefs have not been considered and are deemed waived. *See* 37 C.F.R. § 41.37(c)(1)(vii).

We affirm.

ISSUES

1. Under 35 U.S.C § 102(e), with respect to the appealed claims 1, 2, 4, 6-8, 10, 12, 13, 15-17, 19, and 21, does Michels anticipate the claimed subject matter by teaching all of the claimed limitations?
2. Under 35 U.S.C § 103(a), with respect to the appealed claims 3, 5, 9, 11, 14, 18, and 20, would the ordinarily skilled artisan have found it obvious to modify Michels to render the claimed invention unpatentable?
3. Under 35 U.S.C § 103(a), with respect to the appealed claims 22-25, would the ordinarily skilled artisan have found it obvious to modify Michels with APA to render the claimed invention unpatentable?

FINDINGS OF FACT

1. Michels relates to a switching device that includes multiple ports and uses a lookup table to determine which port to forward network traffic over. (Col. 2, ll. 55-61).

2. As shown in Figure 3, the switching device 50 of Michels includes port intercommunication logic 54 and port 52 which includes a media interface 56, a primary memory 58, and a search engine 60. (Col. 4, ll. 40-42).

3. The search engine 60 includes temporary packet storage 62, packet analysis and key extraction logic 64, two internal binary search engines 66, 68, a first stage memory 70, and forwarding decision logic 72. (Col. 4, ll. 43-46).

4. Binary search engines 66 and 68 are coupled to respective memories 58 and 70. The memories together store a lookup table that the binary search engines use for analyzing network frames received from media interface 56. A management processor (not shown) is coupled to search engines 66, 68 and maintains the lookup table in memories 58, 70. (Col. 5, ll. 33-40).

5. Michels discloses that the binary search engines divide the binary search of the lookup table by each performing some of the iterations of the overall search. For example, if the lookup table has “64K” (i.e., 2^{16}) entries, the binary search engine 66 performs the first eight iterations of the search and binary search engine 68 performs the last eight iterations. (Col. 5, l. 66 – col. 6, l. 5).

6. Michels further discloses that any desired number of search engines may be used. For example, for a 16 iteration search, 16 binary search engines can be used with each search engine performing one iteration, or 4 binary search engines may be used with each binary search engine performing 4 iterations. (Col. 6, ll. 16-22).

7. Michels does not require the partitioning of iterations across search engines to be equal. Also, the lookup table is described as having any desired length and the binary search engines can perform any number of iterations depending on the particular application. (Col. 6, ll. 22-26).

PRINCIPLES OF LAW

1. *Anticipation*

In rejecting claims under 35 U.S.C. § 102, a single prior art reference that discloses, either expressly or inherently, each limitation of a claim invalidates that claim by anticipation. *Perricone v. Medicis Pharmaceutical Corp.*, 432 F.3d 1368, 1375-76, 77 (Fed. Cir. 2005), citing *Minn. Mining & Mfg. Co. v. Johnson & Johnson Orthopaedics, Inc.*, 976 F.2d 1559, 1565 (Fed. Cir. 1992). Also See *In re Paulsen*, 30 F.3d 1475, 1478-79 (Fed. Cir. 1994). Anticipation of a claim requires a finding that the claim at issue reads on a prior art reference. *Atlas Powder Co. v. IRECO, Inc.*, 190 F.3d 1342, 1346 (Fed. Cir. 1999) (quoting *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 781 (Fed. Cir. 1985)).

2. *Obviousness*

The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art. See *In re Kahn*, 441 F.3d 977, 987-88 (Fed. Cir. 2006), *In re Young*, 927 F.2d 588, 591 (Fed. Cir. 1991), and *In re Keller*, 642 F.2d 413, 425 (CCPA 1981). The Examiner can satisfy this burden by “showing some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR Int’l. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (2007) (citing *In re Kahn*, 441 F.3d at 988).

“The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *Leapfrog Enter., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1161 (Fed. Cir. 2007) (quoting *KSR*, 127 S. Ct. at 1739). The Court also said that “the

obviousness analysis cannot be confined by a formalistic conception of the words teaching, suggestion, and motivation.” *KSR*, 127 S. Ct. at 1741.

“One of the ways in which a patent’s subject matter can be proved obvious is by noting that there existed at the time of invention a known problem for which there was an obvious solution encompassed by the patent's claims.” *KSR*, 127 S. Ct. at 1742.

ANALYSIS

1. 35 U.S.C. § 102 Rejection

Appellants disagree with the Examiner’s findings in *Michels* with respect to the location of primary memory 58 and whether it is part of the search engine depicted as box 60 (App. Br. 8). Appellants further assert that *Michels*’ search device 60, among other elements, includes two binary search engines 66 and 68 and a first stage memory 70, but not memory 58 (App. Br. 9).

The Examiner acknowledges that memory 58 is shown by *Michels* as separate and outside of search engine 68 in Figure 3 (Ans. 6). However, the Examiner interpreted the reference as teaching “the primary memory as a part of a search device” (*id.*).

Based on our review of *Michels*, we disagree with Appellants’ contention (Reply Br. 4) that finding memory 58 to be a part of the search device while it is separate and outside the search device is contradictory. Initially, we find that *Michels* discloses a switching device (FF 1) which is shown as switching device 50 in Figure 3 and disclosed to include all the elements shown in Figure 3 (FF 2). Although search engines 66 and 68, as

well as memory 70, are disclosed to be parts of search engine 60 (FF 3), both search engines are coupled to memories 70 and 58 (FF 4).

Therefore, as stated by the Examiner (Ans. 6), while shown in Figure 3 as separate and outside search engine 60, memory 58, along with search engine 60, is a part of Port 52, which itself is part of switching device 50 (FF 2). The search engine recited in claim 1 is not required to include the table memory, but merely to be connected to the table and the cache. As such, switching device 50 includes the search engine, the table (shown as memory 58), and the cache (shown as memory 70) wherein the search engine is connected to both memories. Under the facts we have here and the arguments presented by the Examiner and Appellants and as described above, we conclude that the Examiner has established a prima facie case of anticipation.

Appellants rely on the same arguments presented with respect to claim 1 to support patentability of independent claims 7, 13, and 16, as well as their dependent claims. Based on the same reasons discussed above, we sustain the 35 U.S.C. § 102 rejection of claims 1, 2, 4, 6-8, 10, 12, 13, 15-17, 19, and 21 as anticipated by Michels.

2. 35 U.S.C. § 103 Rejection

Claims 3, 5, 9, 11, 14, 18, and 20

Appellants argue that while Michels states that the number of iterations performed by each search engine depends on the application, no motivation is present to support the modification to provide the claimed relationship between the first and the second search cycles (App. Br. 22-24). The Examiner responds by pointing to Michels' description of the number of

iterations in each search engine which indicates that the partitioning of iterations across search engines need not be equal (Ans. 6).

We disagree with Appellants' assertion that Michels provides no suggestion for modifying the number of iterations. Rather, we determine that one of ordinary skill in the art would have clearly considered making the number of cycles unequal such that one is less than the other (FF 5-6). Michels further teaches that the lookup table can have any length (FF 7), which adds another degree of freedom for setting the number of iterations. In that regard, consistent with the *KSR* holding, one of ordinary skill in the art equipped with the knowledge obtained from Michels' disclosure would have made the first number of cycles less than the second one since it results in nothing but predictable results.

Appellants argue patentability of claims 3, 5, 9, 11, 14, 18, and 20 by relying on the same arguments. Therefore, for the reasons discussed above, we sustain the 35 U.S.C. § 103 rejection of claims 3, 5, 9, 11, 14, 18, and 20 over Michels.

Claims 22-25

Appellants contend that paragraph [0055] in the Specification "does not contain any admission of prior art" and cannot be properly applied in rejecting claim 22 (App. Br. 28). The Examiner responds that Appellants' disclosure in paragraph [0055] was merely relied on for acknowledging the concept of implementing the switching device elements of Michels "into a single semiconductor substrate as general knowledge of one of ordinary skill in the art" (Ans. 7).

We observe that although not intended as admission of prior art, Appellants' paragraph [0055] includes recognition by Appellants that,

without any need for further detailed explanation, one of ordinary skill in the art would have been able to make the claimed implementation. Consistent with the *KSR* holding, such modification, even without reliance on Appellants' disclosure, would have been obvious to one of ordinary skill in the art since it provides an obvious solution for a known problem (integrated circuit vs. discrete components) with predictable results.

Appellants argue patentability of claims 23-25 by relying on the same arguments discussed above. Therefore, for the reasons discussed above, we sustain the 35 U.S.C. § 103 rejection of claims 22-25 over Michels in view of APA.

CONCLUSION

On the record before us, Appellants have failed to show that the Examiner has erred in rejecting claims 1-25. In view of our analysis above, we sustain the 35 U.S.C. § 102 rejection of claims 1, 2, 4, 6-8, 10, 12, 13, 15-17, 19, and 21 and the 35 U.S.C. § 103 rejections of claims 3, 5, 9, 11, 14, 18, 20, and 22-25.

ORDER

The decision of the Examiner rejecting the claims is affirmed.

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

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