

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JOSH N. HOGAN

Appeal 2007-2632
Application 10/846,024
Technology Center 2800

Decided: November 14, 2007

Before: JOSEPH F. RUGGIERO, ROBERT E. NAPPI and
KEVIN F. TURNER, *Administrative Patent Judges.*

TURNER, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF CASE

Appellant appeals under 35 U.S.C. § 134 from final rejections of claims 1 and 3 through 11. We have jurisdiction under 35 U.S.C. § 6(b).

Appellant discloses a one-time programmable solid state memory. (Specification [0001]). The memory has address and spare lines, as well as address and spare logic, such that lines can be broken so that defective areas of the memory need not be used. (Specification [0005]).

The independent claim 1, which is deemed to be representative, reads as follows:

1. A level of a solid state memory device, the level comprising:
main memory;
a plurality of address lines and spare lines, each address line having a breakable link made of photoconductive material, each spare line having a breakable link made of photoconductive material;
address logic connected to the main memory by the address lines; and
spare logic connected to the main memory by the spare lines.

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Chen	US 3,689,900	Sep. 5, 1972
Rehfeld	US 3,783,506	Jan. 8, 1974
Saitoh	US 4,489,402	Dec. 18, 1984
Eichman	US 5,457,649	Oct. 10, 1995
Motonami	US 5,888,851	Mar. 30, 1999
Yi	US 5,933,382	Aug. 3, 1999

The Examiner rejected, under 35 U.S.C. § 103(a):

claims 1, 3, 6 and 8-11 as unpatentable over Motonami and Rehfeld,
claim 4 as unpatentable over Motonami, Rehfeld and Saitoh,
claim 5 as unpatentable over Motonami, Rehfeld, Saitoh and Chen,
claims 1 and 6 as unpatentable over Motonami and Eichman,
claim 7 as unpatentable over Motonami, Eichman and Yi,
claim 7 as unpatentable over Motonami, Rehfeld and Yi.

While Appellant has indicated the appeal of the rejections of claims 1 and 3-11, arguments have been raised solely against the rejection of claims 1, 3, 6 and 8-11 based on the combination of Motonami and Rehfeld and the

separate rejection of claims 1 and 6 based on the combination of Motonami and Eichman, as listed above.

Appellant contends that the Examiner erred in indicating that the claimed subject matter would have been obvious. More specifically, Appellant has argued that the Office Action failed to provide any reason, incentive or motivation for making Motonami's fuse out of a photosensitive material. (Br. 7). Appellant also argues that there is no teaching of "sense resistors" in the applied art and that Motonami and Rehfeld represent non-analogous art. (Br. 8 & 9). Appellant also contends that the Office Action failed to provide any reason, incentive or motivation for combining Motonami and Eichman and that Eichman fails to teach or suggest a "breakable" fuse. (Br. 10 & 11).

The Examiner finds that the necessary motivation was supplied and the substitution of one material disclosed to be used for a fuse for another would have been obvious. (Answer 9 & 10). The Examiner also finds that a fuse can function as a "sense resistor" and that "breakable" can be interpreted as "interruptible," in the context of the instant application. (Answer 11 & 12).

We note: Appellant has not addressed the Examiner's rejections of claims 4, 5 and 7.

We affirm.

ISSUE

Has Appellant shown that the Examiner erred in establishing that the combination of the cited references teach or suggest all of the disputed elements of the independent claims 1, 8 and 10?

FINDINGS OF FACT

1. Appellant discloses a main memory having memory elements connected through word and bit lines to programmable address logic. (Specification [0015] - [0019]; Fig. 1, elements 10, 12, 14, 16 & 18).
2. Some of the address lines are spares that can be employed through the spare logic and breakable sense resistors to avoid the use of a defective area within the main memory. (Specification [0048] - [0052]; Fig. 6a, elements 210, 211, 236, 252 & D).
3. While the definitions of the claim terms "breakable" and sense resistor" have been discussed at length by Appellant and the Examiner, the Specification does not provide specific definitions for such terms. Appellant indicates that the Specification details the function of a breakable sense resistor, but the section referred to details the use of a sense current to provide a resistance state. The Specification discloses that a fuse, during programming, has its resistance state changed from low to high by "blowing" the fuse. (Specification [0023] & [0031]).
4. Motonami discloses that a memory array can include memory cells and spare memory cells connected through word and bit lines. The word lines and the spare word lines are disclosed as being connected to fuses and to word drivers and space word drives, respectively. (Col. 2, l. 59 - Col. 3, l. 16; Figs. 7 & 8, elements 50, 52, 55, MC, SMC, WL & SWL).
5. Appellant does not traverse what the Examiner has asserted that Motonami explicitly discloses. (Br. 7).

6. The Examiner has acknowledged that Motonami does not clearly disclose the fuse links being sense resistors made of photoconductive material. (Answer 4 & 7).

7. Rehfeld describes a process for producing electrical fuse elements through deposition of materials to form resistance paths, where those materials may be photoconductive. (Col. 1, ll. 4, 5, 9-16 & 27).

8. Eichman describes memory devices using amorphous silicon (a-Si) fuses, where a-Si is a known photoconductive material, as noted in the rejection of claims 1 and 6. (Col. 1, ll. 9-16).

PRINCIPLES OF LAW

The Examiner bears the initial burden of presenting a *prima facie* case of obviousness. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). If that burden is met, then the burden shifts to the Appellant to overcome the *prima facie* case with argument and/or evidence. *See Id.*

The Examiner's articulated reasoning in the rejection must possess a rational underpinning to support the legal conclusion of obviousness. *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006). The analysis need not seek out precise teachings directed to the specific subject matter of the claim but can take into account the inferences and the creative steps that a person of ordinary skill in the art would employ. *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1741 (2007).

The claims on appeal should not be confined to specific embodiments described in the Specification. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1323 (Fed. Cir. 2005) (*en banc*). During ex parte prosecution, claims must be interpreted as broadly as their terms reasonably allow since applicants have

the power during the administrative process to amend the claims to avoid the prior art. *In re Zletz*, 893 F.2d 319, 321-22 (Fed. Cir. 1989).

ANALYSIS

With respect to the rejection of claims 1, 3, 6 and 8-11, based on the combination of Motonami and Rehfeld, Appellant argues that the cited section of Rehfeld provides no specific “reason, incentive, or motivation” for making Motonami’s solid state fuse out of a photoconductive material. However, there need not be any specific teaching in Rehfeld directing one of ordinary skill in the art to change the composition of the fuse material in Motonami; it is sufficient that Rehfeld teaches types of materials that can be used in deposited fuses so that one of ordinary skill in the art may be motivated to make such a substitution in Motonami. We agree with the Examiner that given the disclosure in Motonami of the composition of the fuses for the laser trimming process, and the disclosure of Rehfeld, one of ordinary skill in the art would have been motivated to make a breakable fuse from a photoconductive material. Additionally, while Appellant emphasizes that fuses in Rehfeld may be externally connected, Rehfeld is not so limited.

Appellant has also argued that neither Motonami nor Rehfeld discloses a sense resistor made from a photoconductive material that functions as a breakable link. The Examiner has found that it is inherent that a fuse can function as a sense resistor because it can sense currents due to built-in resistance. The Appellant argues that a sense resistor has a specific structure and a specific function. We do not, however, find any specific definition of a sense resistor or its specific structure in the instant application (Finding of Fact 3) and the Examiner’s interpretation is within the ordinary

and reasonable meaning of the claim term. As such, the inclusion of sense resistors in the claimed solid state memory device would have been obvious in view of the teachings of Motonami and Rehfeld.

Appellant also argues that Rehfeld and Motonami are not analogous art within the meaning of M.P.E.P. 2141.01(a). Appellant again asserts that since the fuses of Rehfeld can be used externally, i.e. such as fuses for automobile assemblies, and have different purposes than the fuses in Motonami, they represent non-analogous art. The disclosures are both drawn to fuses and Appellant has not shown why one of ordinary skill in the art would not look to other teachings of fuses in selecting materials for fuses in Motonami.

With respect to the rejection of claims 1 and 6, based on the combination of Motonami and Eichman, Appellant asserts (Br. 10) that the motivation to combine Motonami and Eichman is insufficient because the motivation supplied in the rejection, namely to “permit the use of small breakdown voltage and provide single or one level metallization type structure for OTP ROM devices,” does not provide a reason, incentive or motivation for modifying Motonami. We find the motivation supplied to be sufficient because the use of fuses made from a-Si material, from Eichman, as the fuses in Motonami represents mere substitution of one element for another known in the art which does no more than yield predictable results.

Appellant also contends that Eichman fails to teach or suggest a “breakable” fuse and there would be no motivation for creating a breakable fuse out of a photoconductive material. Appellant argues that there is nothing “breakable” about a-Si fuses, since their conductivity is changed

during programming and nothing is broken. Additionally, Appellant argues that there would be no rationale for substituting the non-breakable fuses of Eichman for the fuses of Motonami. The Examiner finds that a “breakable” link should be understood to be “interruptible” or “changeable,” (Answer 12 & 13), within the context of the claimed application. While Appellant urges that “breakable” should be interpreted as “breakable,” the Specification does not provide a definition of breakable. (Finding of Fact 3). As such, we find that the limitation “breakable link” reads on any element that can properly be referred to as a fuse and both Motonami and Eichman refer to fuse elements that are “blown” to change their conductivities.

We also find no error in the Examiner’s separate rejections of dependent claims 4, 5, and 7 based on various combinations of the cited prior art references. Appellant has made no separate arguments as to the patentability of these claims but, instead, has relied upon arguments made with respect to their base independent claim 1, which arguments we have found to be unpersuasive.

CONCLUSION OF LAW

We conclude that Appellant has not shown that the Examiner erred in rejecting claims 1, 3, 6 and 8 through 11 and we affirm the Examiner’s rejections under 35 U.S.C. § 103(a).

DECISION

The decision of the Examiner 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).

AFFIRMED

tdl/gvw

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