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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte DEAN KLEIN

Appeal 2014-009911
Application 12/170,612[1]
Technology Center 2100

Before ST. JOHN COURTENAY III, TERRENCE W. McMILLIN, and SCOTT B. HOWARD, *Administrative Patent Judges*.

HOWARD, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134(a) from the Final Rejection of claims 1–27, which constitute all of the claims pending in this application. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm-in-part.

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[1] Appellant identifies Micron Technology, Inc. as the real party in interest. App. Br. 1.

THE INVENTION

The disclosed and claimed invention is directed to data collection and compression in a solid state storage device. Abstract.

Claims 1 and 9, reproduced below, are illustrative of the claimed subject matter:

> 1. A method for data collection and compression in a solid state storage device, the method comprising:
>
> reading a status bit for each memory page that indicates whether a respective memory page is only partially programmed;
>
> collecting, in response to its respective status bit, data from a memory page indicated as only partially programmed;
>
> compressing, in response to its respective status bit, the collected data; and
>
> programming the compressed data to the solid state storage device.
>
> 9. A method for data collection and compression in a memory device having a memory array, the method comprising:
>
> determining whether memory pages of the memory array are only partially programmed with valid data by reading a status bit for each page, wherein the partially programmed memory pages have an unprogrammed area;
>
> reading the valid data from the partially programmed memory pages in response to the respective status bit for each memory page;
>
> compressing the read data in response to the respective status bit for each memory page; and
>
> programming the compressed data back to the memory array.

REFERENCES

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

Lee	US 5,930,167	Jul. 27, 1999
Dye	US 6,145,069	Nov. 7, 2000

Radermacher	US 2002/0116424 A1	Aug. 22, 2002
Balasundaram	US 2007/0291571 A1	Dec. 20, 2007
Colecchia	US 2008/0228998 A1	Sept. 18, 2008

Giovanni De Micheli, Synthesis and Optimization of Digital Circuits (1994) (hereinafter "De Micheli").

Eran Gal and Sivan Toledo, "Algorithms and Data Structures for Flash Memories" Vol. 37. Iss. 2. (June 2005) (hereinafter "Toledo").

John L. Hennessy and David A. Patterson, Computer Organization and Design The Hardware/Software Interface, Morgan Kaufmann. 2nd ed. (1998) (hereinafter "Patterson").

REJECTIONS

A. Claims 1–9, 12, 14–17, 20, and 21 stand rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Lee in view of De Micheli. Final Act. 2–8.

B. Claims 10 and 11 stand rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Lee in view of De Micheli and Radermacher. Final Act. 8–9.

C. Claim 13 stands rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Lee in view of De Micheli and Colecchia. Final Act. 9–10.

D. Claims 18 and 19 stand rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Lee in view of De Micheli and Toledo. Final Act. 10–11.

E. Claim 22 stands rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Lee in view of De Micheli and Dye. Final Act. 11–12.

F. Claim 23 stands rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Lee in view of De Micheli and Balasundaram. Final Act. 12.

G. Claims 24–27 stand rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Lee in view of Dye, Patterson, and Colecchia. Final Act. 12–17.

ANALYSIS

We have reviewed the Examiner's rejection in light of Appellant's arguments that the Examiner erred. In reaching this decision, we have considered all evidence presented and all arguments made by Appellant. We are not persuaded by Appellant's arguments regarding claims 1–8. However, we are persuaded by Appellant's arguments that the Examiner erred in rejecting claims 9–27 based on the present record.

Claims 1–8

Appellant argues the Examiner erred in finding Lee "teaches 'reading a status value for each memory page that indicates whether a respective memory page is only partially programmed.'" App. Br. 7–8; *see also* Reply Br. 2–3. Particularly, Appellant asserts:

> What the Advisory Action asserts is that when the file allocation table of Lee indicates that cells are programmed with two data states, that entry in the file allocation table is the claimed status value showing that a page is partially programmed. By this reasoning, then, when the file allocation table of Lee indicates that cells are programmed with four data states, that entry must necessarily be the claimed status value showing that a page is fully programmed. By this interpretation, which is the only interpretation that allows a file allocation table indicating data is programmed in two states to indicate that the page is partially

> programmed, then when any file allocation table indicates that data is programmed in four states, that indicates that the page is fully programmed. *As can clearly be seen, this is incorrect, and Appellant requests reconsideration and reversal of this incorrect assertion and interpretation.*

App. Br. 6–7 (emphasis added).

The Examiner finds Lee teaches that each memory call can be programmed with either four states or two states. Final Act. 2; Adv. Act. 2; Ans. 3–4. The Examiner also concludes the broadest reasonable construction of "partially programmed" (claim 1) is broad enough to encompass the two state memory cells because those cells store "data in only two states per cell rather than the maximum of four states per cell." Adv. Act. 2; *see also* Ans. 3–4 ("[T]he Examiner is interpreting that when the file allocation table of Lee indicates that cells are programmed with two states, the corresponding page is within the broadest reasonable interpretation of being partially programmed, while when the file allocation table of Lee indicates that cells are programmed with four states, the corresponding page is within the broadest reasonable interpretation of being fully programmed.").

Appellant does not provide persuasive argument or evidence to support the assertion that Lee's memory cells with two states are not partially programmed. It is well settled that mere attorney argument and conclusory statements unsupported by factual evidence are entitled to little probative value. *In re Geisler*, 116 F.3d 1465, 1470 (Fed. Cir. 1997); *see also In re Pearson*, 494 F.2d 1399, 1405 (CCPA 1974) (attorney argument is not evidence). Although Appellant asserts in the Appeal Brief that the

Examiner's finding "can clearly be seen . . . [to be] incorrect," App. Br. 7, Appellant does not say why that is so.

In the Reply Brief, Appellant argues the Examiner erred in construing the partially programmed limitation to be broad enough to encompass Lee's two state memory cells. Reply Br. 2–3.

We are not persuaded by Appellant's argument that the Examiner erred. This argument was raised for the first time in the Reply Brief. Because Appellant did not raise that argument in the opening brief and good cause has not been shown why it should be considered, we will not consider this argument. 37 C.F.R. §41.41(b)(2) (2014); *Ex parte Borden*, 93 USPQ2d 1473, 1474 (BPAI 2010) (Informative) ("[T]he reply brief [is not] an opportunity to make arguments that could have been made in the principal brief on appeal to rebut the Examiner's rejections, but were not.").

Appellant also argues the Examiner erred in finding Lee teaches the collecting step recited in claim 1. App. Br. 8. However, Appellant merely restates the point discussed above regarding the construction of partially programmed. *Id.* Accordingly, for the same reasons discussed *supra*, we are not persuaded by Appellant's argument that the Examiner erred. *See* Final Act. 2; Adv. Act. 2; Ans. 4.

Appellant further argues the Examiner erred in finding Lee teaches the compressing step recited in claim 1. According to Appellant, column 8 of Lee — cited by the Examiner — has nothing to do with compressing data. Appellant also argues that the description of Figure 4C in column 7 teaches:

> that data is compressed "either in response to detailed control signals from the controller 23 through the control logic 51, or from the control logic 51 itself by including within the logic a state machine or the like." The text of Lee itself clearly and

> unequivocally teaches that compression is not performed in response to any status bit, but is instead performed in response to detailed control signals from the controller, or from the control logic itself.

App. Br. 9.

The Examiner finds Lee teaches "compressing, in response to its respective status bit, the collected data." Final Act. 3 (citing Lee fig. 4C, 8:30–33). The Examiner further finds that Figure 4C shows the compression of data and column 8 was being cited "to indicate that the compression was done in response to the status value as explained above. The text of Lee clearly teaches that compression is performed after a determination was performed based on reading the file allocation table." Adv. Act. 2; *see also* Ans. 5. Accordingly, the Examiner finds that "Lee teaches the compression is performed in response to the status value." Adv. Act. 2.

We are not persuaded by Appellant's argument that the Examiner erred. Figures 4B and 4C shows data written in two states being read and then compressed. As the sentence directly following the one quoted by Appellant make clear, it is only data written in two states — which the Examiner finds, and we agree, is partially programmed — that is read and compressed. Lee 7:50–57. Accordingly, we are not persuaded that the Examiner erred in finding the compression in Lee being performed in response to a status value indicating the data block is written in two states.

With regard to De Micheli, Appellant argues that "De Micheli does not teach or reasonably suggest the numerous limitations of claim 1 shown above not to be present in Lee." App. Br. 9. As discussed above, we are not persuaded by Appellant's argument that the Examiner erred in finding Lee

teaches any of the disputed claim limitations. Accordingly, we are not persuaded by Appellant's argument that the Examiner erred.

Finally, Appellant argues the Final Action did not make a prima facie case obviousness. App. Br. 15. Specifically, Appellant argues:

> Appellant submits that the Examiner changed the standard for meeting a prima facie case of obviousness to state that Appellant's attempt to counter arguments shows that a prima facie case of obviousness had been made. Were that the standard, since Appellant is required to respond to all points of an Office Action, then any statement in any Office Action on obviousness would, in the Examiner's view, constitute a prima facie case. The MPEP has multiple sections discussing prima facie cases of obviousness. None of those indicate that an attempt to counter an Examiner's argument validates an improper prima facie case. Appellant requests reconsideration of the Examiner's incorrect assertion regarding prima facie obviousness.

Id. (emphasis omitted).

We are not persuaded by Appellant's argument. As our reviewing Court has held, "all 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." *In re Jung*, 637 F.3d 1356, 1363 (Fed. Cir. 2011). We have reviewed the Examiner's rejection (Final Act. 2–4) and conclude that the notice requirement is satisfied in this case by "the examiner's discussion of the theory of invalidity . . . , the prior art basis for the rejection . . . , and the identification of where each limitation of the rejected claims is shown in the prior art reference by . . . [paragraph] number." *Jung*, 637 F.3d at 1363.

Accordingly, we sustain the Examiner's rejection of claim 1, along with the rejection of claims 2–8, which are not separately argued.

Claims 9–27

With regard to claim 9, Appellant relies on the same arguments discussed above for claim 1. Additionally, Appellant argues that even if the Examiner was correct that data stored in two states is partially programmed, that "is not in any way relevant to the limitation 'wherein the partially programmed memory pages have an unprogrammed area' which it allegedly teaches." App. Br. 10; Reply Br. 3–4. Stated differently, Appellant argues "regardless of whether Lee et al. programs its memory cells to one of two states or one of four states, the same area of memory is programmed." Reply Br. 4.

The Examiner finds Lee "Figure 3A shows how different read currents indicate different memory values" and teaches the "the partially programed memory pages have an unprogramed area," as recited in claim 9. Final Act. 5. The Examiner further finds this is related to the teaching in the Appellant's Specification relating to "at least one cell in a sector retains the erased value." Ans. 6 (citing Spec. ¶ 23).

We have reviewed the cited sections of Lee and conclude the Examiner's finding is not supported by the cited evidence. Specifically, the cited evidence does not support the additional limitation of claim 9 requiring "the partially programmed memory pages have an unprogrammed area."

Accordingly, we are constrained on this record to reverse the Examiner's rejection of claim 9, along with the rejections of claims 17 and

24, which recite limitations commensurate in scope to the disputed limitations discussed above, and dependent claims 12, 14–16, 20, and 21.

Regarding the remaining rejection (rejections B, C, D, E, F and G), the Examiner has not shown that any of the secondary references (Radermacher (rejection B), Colecchia (rejections C and G), Toledo (rejection D), Dye (rejections E and G), Balasundaram (rejection F), or Patterson (rejection G)) overcomes the aforementioned deficiency of Lee. Therefore, we reverse rejection B of dependent claims 10 and 11, rejection C of dependent claim 13, rejection D of dependent claims 18 and 19, rejection E of dependent claim 22, rejection F of dependent claims 23, and rejection G of dependent claims 24–27.

DECISION

For the above reasons, we affirm the Examiner's decisions rejecting claims 1–8.

For the above reasons, we reverse the Examiner's decisions rejecting claims 9–27.

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). *See* 37 C.F.R. § 41.50(f).

AFFIRMED-IN-PART