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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte TIMOTHY ANDREW LEWIS

Appeal 2015-002961
Application 11/973,223
Technology Center 2100

Before JOSEPH L. DIXON, TERRENCE W. McMILLIN, and
JOYCE CRAIG, *Administrative Patent Judges*.

DIXON, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant appeals under 35 U.S.C. § 134(a) from a rejection of claims 1–17, 19, and 21–26. Claims 18 and 20 have been canceled. We have jurisdiction under 35 U.S.C. § 6(b).

We reverse.

The claims are directed to a manufacturing mode for secure firmware using lock byte. Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. A method for securing non-volatile memory comprising:

updating a signature byte, stored within a non-volatile memory, from a default value to an updated value;

after updating the signature byte from the default value to the updated value, determining that the signature byte is set to a value associated with non-write protected modes;

write-protecting at least one sector of the non-volatile memory when the signature byte is not set to the value associated with the non-write protected mode;

after updating the signature byte from the default value to the updated value, preventing an entire sector in which the signature byte resides from being set to a predefined sector value unless a replacement firmware identifier associated with a replacement firmware matches a required replacement firmware identifier;

determining whether a reflash of the non-volatile memory is authorized by comparing the replacement firmware identifier against the required replacement firmware identifier and indicating that reflash of the non-volatile memory is authorized if the replacement firmware identifier matches the required replacement firmware identifier; and

if the reflash of the non-volatile memory is authorized, write-enabling the nonvolatile memory, reflashing the non-volatile memory, and setting the signature byte to a value different from the value associated with the non-write protected mode.

REFERENCES

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

Xie	US 2006/0248267 A1	Nov. 2, 2006
Ypyä et al.	US 2007 /0078957 A1	Apr. 5, 2007
Alfano et al.	US 2007/0300047 A1	Dec. 27, 2007
Marolia et al.	US 7,480,907 B1	Jan. 20, 2009

REJECTIONS

The Examiner made the following rejections:

Claims 1–16 and 21–26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Alfano and in view of Ypyä.

Claim 17 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Alfano in view of Ypyä as applied to claim 1, and in further view of Xie.

Claim 19 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Alfano in view of Ypyä as applied to claim 1, and in further view of Marolia.

ANALYSIS

With respect to independent claims 1, 24, and 25, Appellant argues the claims together. Independent claims 24 and 25 contain similar

limitations as independent claim 1. As a result, we address independent claim 1 as the illustrative claim. Appellant contends:

the Examiner erred by ignoring the language of claim 1 that recites, “after updating the signature byte from the default value to the updated value, preventing an entire sector in which the signature byte resides from being set to a predefined sector value unless a replacement firmware identifier associated with a replacement firmware matches a required replacement firmware identifier.”

(App. Br. 9).

The Examiner maintains that:

Significantly, the **Read lock byte** or the **Write/Erase lock byte** corresponds to the “**signature byte**” as recited in claim 1. Further, as described above, the value of the Read lock byte and the Write/Erase lock byte is “updated” by changing the bits contained within the byte from a logic “0” to a logic “1,” or vice [sic, vice] versa, in order to prevent or to allow, respectively, the accesses to the block of the flash memory corresponding to the specific bit.

Regarding the limitation “preventing an entire sector in which the signature byte resides from being set to a predefined sector value” recited in claim 1, Alfano expressively teaches that **each block of the flash memory is protected by a Read lock byte, which controls whether the block is allowed to be read, and a Write/Erase lock byte, which controls whether the block is allowed to be written or erased** [as shown in figure 21; ... Each bit in a security lock-byte protects one 4 kbyte block of memory. Clearing a bit to logic 0 in a Read lock byte prevents the corresponding block of Flash memory from being read across the JTAG interface. Clearing a bit in the Write/Erase lock byte protects the block from JTAG erasures and/or writes ... (¶ 0171)].

(2) The limitation specifically recites that it is to prevent an entire sector from being set to a predefined sector value. Thus, if only certain bytes in the sector are set to the predefined value while the other bytes in the sector are under protection and are not allowed to be set to the predefined value, then clearly not the entire sector is set to the predefined value, and the limitation

“preventing an entire sector in which the signature byte resides from being set to a predefined sector value” is still met because the entire sector is being prevented from being set to the predefined sector value due to the fact that some bytes in the sector are still under protection and are prevented from being set to the predefined sector value.

(Ans. 5–6).). The Examiner finds that the broadest reasonable interpretation of “the entire sector” encompasses a sector in which at least one byte is prevented from being set. Referring to Appellant’s Specification on page 10 (Ans. 6–7), and the Examiner maintains that:

every single byte of the sector must be set to the same predefined sector value; and consequently, when there is at least one byte in the sector that is prevented/protected from being set to the predefined sector value, not the entire sector is set to the predefined sector value, thus the entire sector is prevented from being set to the predefined sector value.

(Ans. 7.)

We agree with Appellants that the Examiner erred in interpreting “an entire sector” to mean some portion of the entire sector. Reply Br. 6. The plain language of the claim does not distinguish between individual bytes of the sector, other than the signature byte. Moreover, we find the Examiner’s interpretation is not consistent with Appellants’ Specification. The Specification describes that:

a memory device may not allow writing or setting of certain bytes to certain values without writing or setting that value to the entire sector. For example, it may not be possible to set a signature byte back to the manufacturer's default value of the memory device without setting the entire sector in which the signature byte resides to that default or erased value.

Spec. 10, ll. 23–28. The Examiner’s interpretation permits certain bytes in the sector to be set to the predefined value while other bytes in the sector are

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under protection and are not allowed to be set to the predefined value. *See* Ans. 6. According to paragraph 10, however, “writing or setting of certain bytes to certain values without writing or setting that value to the entire sector,” is the very situation that is not permitted. Therefore, we are persuaded the Examiner erred.

Appellant contends that the Examiner attempts to impermissibly change the claim language without adequate support. We agree with Appellant that the Examiner has not provided sufficient persuasive evidence to support the Examiner’s position nor has the Examiner reasonably interpreted the express claim language in light of Appellant’s Specification. (Reply Br. 6–7). Therefore, on the record before us, we do not sustain the rejection of independent claim 1 and dependent claims 2–16 and 21–23.

Independent claims 24 and 25 contain similar limitations as argued with respect to independent claim 1. As a result, we do not sustain the rejection of independent claims 24 and 25 and dependent claim 26.

The Examiner has not identified how the additional prior art references remedy the deficiency with respect to dependent claims 17 and 19. Consequently, we reverse the rejection of dependent claims 17 and 19 based upon obviousness.

CONCLUSION

The Examiner erred in rejecting claims 1–17, 19, and 21–26 under 35 U.S.C. § 103 based upon obviousness.

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DECISION

For the above reasons, we reverse the Examiner's rejection of claims 1-17, 19, and 21-26.

REVERSED