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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JOHN WILLIAM HASKINS JR.,
DAVID ANTHONY SLIK, KEITH ARNOLD SMITH, and
MAXIM GERALD SMITH

Appeal 2018-004958¹
Application 14/978,729
Technology Center 2100

Before MICHAEL J. STRAUSS, JEREMY J. CURCURI, and
ADAM J. PYONIN, *Administrative Patent Judges*.

PYONIN, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134(a) from the Examiner's decision to reject all pending claims. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

¹ NetApp, Inc. is listed as the real party in interest. App. Br. 3

STATEMENT OF THE CASE

Introduction

The Application is directed to “the field of data storage, and more particularly to protection against wandering writes for Shingled Magnetic Recording (SMR) storage devices.” Spec. ¶ 1. Claims 1, 3, 5–7, and 21–35 are pending; of these, claims 1, 24, and 32 are independent. App. Br. 15–20. Claim 1 is reproduced below for reference (emphasis added):

1. A method comprising:
 - writing a first set of data blocks of data of a write request to first physical blocks in a first open zone of a shingled magnetic recording (SMR) storage device of a storage system;
 - writing the first set of data blocks to a structure in a nonvolatile memory of the storage system, wherein the structure includes a second set of data blocks already written to second physical blocks in the first open zone, wherein the second physical blocks precede the first physical blocks;
 - detecting occurrence of a wandering write error during the writing of the first set of data blocks to the first open zone; and
 - based on the detection of occurrence of the wandering write error while writing to the first open zone,*
 - from the beginning of the first open zone, validating data in the first open zone based on data in the structure;
 - for data in the first open zone that are validated,*
 - writing the validated data from the first open zone to a second open zone in the SMR storage device; and*
 - for data in the first open zone that are determined to be corrupted based on the validating, writing data that correspond to the corrupted data from the structure to the second open zone.*

References and Rejections

Claims 1, 3, 5, 7, 21–27, and 29–35 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hess (US 9,269,376 B1; Feb. 23, 2016),

Malina (US 8,959,281 B1; Feb. 17, 2015), and Fallone (US 2015/0269964 A1; Sept. 24, 2015). Final Act. 4.

Claims 6 and 28 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hess, Malina, Fallone, and Cohen (US 9,329,991 B2; May 3, 2016). Final Act. 11.

ANALYSIS

Appellants argue the Examiner errs in finding the combined references teach or suggest the claim 1 limitation regarding writing validated data to a second zone, because “the Examiner’s combination increases the chances that data will be lost.” App. Br. 10. Particularly, Appellants contend Fallone’s last resort zone is not analogous to the recited “second zone,” as “Fallone discloses a last resort zone as a zone ‘associated with a higher risk of data loss than other portions’” (App. Br. 9, quoting Fallone ¶ 21) such that “[t]he proposed combination by the Examiner writes validated data from a lower risk portion of the disk into the zone most at risk to lose data due to whatever is causing the wandering write error” (App. Br. 10).

We are persuaded the Examiner’s rejection is in error. Claim 1 recites writing to a second zone both (1) validated data, and (2) data corresponding to corrupted data, “based on the detection of occurrence of the wandering write error while writing to the first open zone.” Hess, as cited by the Examiner, teaches writing the (2) data corresponding to corrupted data. Final Act. 7–8; Hess 3:9–10 (“a specially designated exception zone is maintained for re-writes of data that fails verification.”). The Examiner relies on the teachings of Fallone to additionally write the (1) validated data to the second zone. *See* Final Act. 8 (stating one of ordinary skill would

modify Hess with Fallone, so “that when duplicate copies of a data block are required, the data may be written to the last resort zone, para 0046 of Fallone.”).

The Examiner provides no reasoning, however, why one of ordinary skill would require such duplicate copies, let alone why one of ordinary skill would want to copy data into a zone “associated with a higher risk of data loss.” Fallone ¶ 21; App. Br. 10. Thus, the Examiner has not shown all claim limitations are obvious in view of the cited references. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (“[A] patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art,” as “[r]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.”).

We are persuaded the Examiner’s rejection is in error. Accordingly, we reverse the rejection of independent claim 1, independent claims 24 and 32 commensurate in scope, and claims 3, 5, 7, 21, 22, 25–27, 29–31, and 33–35 that depend therefrom. The Examiner does not find Cohen cures the deficiency discussed above. We, therefore, also reverse the rejection of dependent claims 6 and 28.

DECISION

The Examiner’s decision rejecting claims 1, 3, 5–7, and 21–35 is reversed.

REVERSED