UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MITCHELL MARKOW, JEREMY M. FORD, and
RICARDO V. DOMINGUEZ

Appeal 2007-3033
Application 10/402,024
Technology Center 2100

Decided: April 29, 2008

Before JOSEPH L. DIXON, LANCE LEONARD BARRY, and
JEAN R. HOMERE, *Administrative Patent Judges*.

DIXON, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the Examiner's final rejection of claims 1-20. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

BACKGROUND

Appellants' invention relates to an acoustic power spectra sensor for hard disk drives to provide early detection of drive failure and diagnostic capabilities. (Spec. 1) An understanding of the invention can be derived from a reading of exemplary claim 1, which is reproduced below.

> 1. An information handling system for detecting failure of a hardware component in the information handling system, comprising:
>
> a processor;
>
> memory interfaced with the processor;
>
> program code stored by the memory and executable by the processor;
>
> a hardware component;
>
> a sensor positioned within the hardware component for detecting an acoustic property of a hardware component in an information handling system;
>
> where the program code comprises a diagnostics module for analyzing the detected acoustic property and issuing a hardware component failure signal based upon the detected acoustic property.

PRIOR ART

The prior art references of record relied upon by the Examiner in rejecting the appealed claims are:

Kurita.	US 5894459	Apr. 13, 1999
Erten	US 6625587 B1	Sep. 23, 2003
Radomski	US 6507790 B1	Jan. 14, 2003

Gross	US 6,957,365 B2	Oct. 10, 2005

REJECTIONS

Claims 1, 2, and 5-9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Gross in view of Kurita. Claims 3 and 4 stand rejected under 35 U.S.C.§ 103(a) as being unpatentable over Gross in view of Kurita further in view of Erten. Claims 10-13, 15, 17, 19, and 20 stand rejected under 35 U.S.C.§ 103(a) as being unpatentable over Gross in view of Radomski further in view of Kurita. Claim 14 stands rejected under 35 U.S.C.§ 103(a) as being unpatentable over Gross in view of Radomski further in view of Kurita. Claims 16 and 18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Gross in view of Radomski and Kurita further in view of Erten.

Rather than reiterate the conflicting viewpoints advanced by the Examiner and Appellants regarding the above-noted rejection, we make reference to the Examiner's Answer (mailed December 21, 2006) for the reasoning in support of the rejections, and to Appellants' Brief (filed October 11, 2006) and Reply Brief (filed April 26, 2007) for the arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to Appellants' Specification and claims, to the applied prior art references, and to the respective positions articulated by Appellants and the

Examiner. As a consequence of our review, we make the determinations that follow.

35 U.S.C. § 103

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. *See In re Fine*, 837 F.2d 1071, 1073 (Fed. Cir. 1988). In so doing, the Examiner must make the factual determinations set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966). "[T]he Examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability." *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). Furthermore, "'there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness' . . . [H]owever, the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and 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)(quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

Appellants' main contention is that neither Gross nor Kurita discloses a sensor that is positioned within the hardware component being monitored. (App. Br. 4-5). Appellants argue that the Examiner agrees that Gross does not specifically disclose the microphone may be within the component and that Gross merely teaches the microphone 106 is acoustically coupled to the disk drive 104. (App. Br. 4-5). Appellants argue that the microphones are never described in Gross as being positioned within the device, but instead

are repeatedly and consistently described as being "acoustically coupled"' to the disk drives. (App. Br. 5). Appellants argue that there would be no need for a triangulator used by Gross if a sensor was positioned within each disk drive. (App. Br. 5).

With respect to the teachings of Kurita, we agree with Appellants with respect to the teaching and suggestion of the use of an microphone in the external housing of the recorder. (App. Br. 5-7). Appellants argue that while Kurita does teach that a microphone may be incorporated into the disk cartridge recording and playback apparatus body, there is no description or suggestion in Kurita of a microphone that is incorporated within the actual disk cartridge load and drive mechanism. (App. Br. 6). We agree with Appellants' arguments concerning the teachings of Kurita.

With that said, we find that Appellants and the Examiner do not appreciate the breadth of independent claim 1 and the teachings of Gross. We note that independent claim 1 merely recites "a hardware component" and "a sensor positioned within the hardware component." Here, the two singular elements of independent claim 1 are clearly taught and fairly suggested by the teachings of Gross. In Figure 1 Gross teaches a singular disk drive with a microphone acoustically associated therewith. We find that the claimed hardware component is a broadly recited limitation wherein in Figure 1 the disk drive may be interpreted to be the hardware component and an acoustic coupling to be fairly suggestive of placement with the disk drive as shown in Figure 1. (Col. 3, ll. 36-46).

Alternatively, Gross teaches and suggests the use of multiple microphones used with disk array systems as shown in Figures 2 and 3. We find that in Figure 3 the disk drive array 306 with associated microphones

332, 334, and 336 would define a larger hardware component/memory system wherein the microphone is placed within a two dimensional array of disk drives that are within an associated housing. (Col. 4, ll. 17-42). We further find the teachings of Gross to be suggestive of the placement of multiple acoustic sensors within this associated housing and the use of triangulation to detect prospective failure of a disk drive(s) which is imminent. To properly identify those disk drives as imminent failures, we find the teachings of Gross to be suggestive of the use of microphones within the housing of the two dimensional array/"hardware component."

With respect to Appellants' argument concerning the combined teachings of Gross and Kurita (App. Br. 8-9), we agree with Appellants that Kurita does not teach a disk drive or hardware component monitoring system and that the microphone associated therewith is for different purposes, we do find the teachings of Kurita to be suggestive of an art recognized noise or acoustic component/signal produced by disk drives. Depending upon the context with which the skilled artisan works, this noise may be problematic as suggested by Kurita or the noise may be useful as disclosed by Gross. Therefore, we generally agree with the Examiner's reliance upon the teachings of Kurita to evidence that skilled artisans desire to place a sensor near or within the environment in which to monitor if the acoustic signal is present. Kurita desires to record a user’s acoustic signal and places the microphone remotely from the motor noise source and closer to the users.

Alternatively, Gross desires to record and use the acoustic signal with respect to the disk drive systems and places the sensor away from other users. In each reference, the microphone is taught and fairly suggested to be

within the environment that the skilled artisan desires to be monitored. Therefore, we do not find error in the Examiner's combination of teachings. Therefore, we do not find that Appellants' argument is persuasive of error with respect to independent claim 1, and we will sustain the rejection of independent claim 1 and dependent claims 2 and 5-9 grouped therewith by Appellants.

With respect to dependent claims 3 and 4, Appellants argue these claims together as a group. Appellants argue that none of the references alone or in combination disclose a silicon microphone that is positioned within and integrated with a hard disk drive component being monitored. (App. Br. 8-9). We do not find Appellants' argument to be commensurate in scope with dependent claim 3 or dependent claim 4 since Appellants have argued the combined limitations of both claims. This does not show error in the Examiner's initial showing of obviousness. Therefore, we do not find Appellants' argument to be persuasive of error, and we will sustain the rejection of dependent claims 3 and 4 grouped therewith.

With respect to independent claim 10, Appellants rely upon the same basic argument that the sensor is not positioned within a hardware component being monitored. (App. Br. 10-11). As discussed above, we did not find this argument persuasive of error in the Examiner's initial showing. Therefore, we will sustain the rejection of independent claim 10. Similarly, we will sustain the rejection of independent claim 17 and dependent claims 11-13, 15, 19, and 20 grouped with independent claim 10.

With respect to dependent claim 14, the Examiner relies upon the teachings of Gross concerning the various well known mechanical failures that developed over time due to the wear in spindle bearing as one of the

most common disk drive failures. Therefore, it would have been readily apparent to those skilled in the art that an acoustic model representing a defective spindle motor profile would have been one of the most desirable failures to prevent. Since dependent claim 14 sets forth the profiles in the alternative, we find the Examiner's initial showing to be reasonable and fairly suggested by the teachings of Gross. Therefore, we do not find that Appellants have shown error in the Examiner's initial showing of obviousness, and we will sustain the rejection of dependent claim 14.

With respect to dependent claims 16 and 18, Appellants again relied upon the same basic argument that the microphone (silicon) is affixed proximate to or positioned within the drive/hardware component or being monitored. Since we did not find this argument persuasive above, we do not find the argument persuasive of the error with respect to dependent claims 16 and 18, and we will sustain the rejection of dependent claims 16 and 18.

CONCLUSION

To summarize, we have sustained the rejection of claims 1-20 under 35 U.S.C. § 103(a).

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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HAMILTON & TERRILE, LLP
P.O. BOX 203518
AUSTIN, TX 78720