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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* LIN ZHOU, JUIL LEE,  
DONGMING LIU, and HUAZHOU LOU

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Appeal 2015-008138  
Application 13/840,962  
Technology Center 2600

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Before MAHSHID D. SAADAT, JOHNNY A. KUMAR, and  
JON M. JURGOVAN, *Administrative Patent Judges*.

KUMAR, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants<sup>1</sup> appeal under 35 U.S.C. § 134(a) from the Final Rejection  
of claims 1–18 and 21.<sup>2</sup> We have jurisdiction under 35 U.S.C. § 6(b).

We affirm-in-part.

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<sup>1</sup> According to Appellants, the real party in interest is Seagate Technology  
(App. Br. 2).

<sup>2</sup> Claims 19 and 20 were canceled.

## STATEMENT OF THE CASE

### *Invention*

Appellants' invention relates to a method to improve contact detection between a read/write head and the surface of a storage media disc (Spec. ¶ 5).

### *Exemplary Claim*

1. A method of detecting initial contact between a transducing head and a storage medium, the method comprising:
  - providing a pulsed input signal to an actuator of the transducing head;
  - sampling amplitudes of the input signal;
  - determining a lock-in amplitude from the sampled amplitudes;
  - generating a curve of the lock-in amplitude against varied heater power; and
  - determining a turning point of the curve.

### *The Examiner's Rejections<sup>3</sup>*

Claims 1, 2, 6–9, 13, 16, 17, and 21 are rejected under 35 U.S.C. § 102(b) as anticipated by Ohno et al. (US 2008/0204924 A1; publ. Aug. 28, 2008) (Final Act. 3–6).

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<sup>3</sup> The Examiner has withdrawn the rejection of claims 3–5, 10–12, 14, 15, and 18 under 35 U.S.C. § 102(b) as anticipated by Ohno (Ans. 2–3).

## ANALYSIS

We have reviewed the Examiner's rejections in light of Appellants' arguments that the Examiner erred. With respect to claims 1, 2, and 7, we agree with the Examiner's findings and conclusions and adopt them as our own. However, regarding claims 6, 8, 9, 13, 16, 17, and 21, we are persuaded by Appellants' contentions that the Examiner erred.

### *Independent Claim 1*

Based on Appellants' arguments (*see* App. Br. 7–10 and 14; Reply Br. 1–3), we decide the appeal of claims 1, 2, and 7 on the basis of representative claim 1. *See* 37 C.F.R. § 41.37(c)(1)(iv).

Appellants contend a “pulsed input signal” implicitly includes an element of time and repeatability, which infers the signal's amplitude changes in a limited period of time and does so multiple times, and Ohno fails to teach such a pulsed input to the actuator (App. Br. 7–9). Appellants further argue Ohno does not teach an input signal that begins at a zero amplitude, goes to a non-zero value, and then returns to a zero value, as alleged by the Examiner (Reply Br. 1–3). We are unpersuaded of Examiner error in the rejection by Appellants' contentions. Although Appellants provide one example of a “pulsed input signal” being a square voltage wave (Spec. ¶ 18), the claims are not limited to a specific pulsed signal pattern (*see Superguide Corp. v. DirectTV Enter., Inc.*, 358 F.3d 870, 875 (Fed. Cir. 2004) (particular embodiments appearing in the written description must not be read into the claim if the claim language is broader than the embodiment)). Under the broadest reasonable interpretation consistent with Appellants' disclosure, we agree with the Examiner's finding that Ohno's

input signal is applied for a limited period of time and changes multiple times (Final Act. 3–4; Ans. 3–5 (citing Ohno ¶ 38 and Fig. 6 (heater power of 78 mW is applied for one turn of the disk, then stepped up multiple times, to 78mW and 81 mW))), which is considered a “pulsed input signal” pattern (*see In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1369 (Fed. Cir. 2004) (“[T]he PTO is obligated to give claims their broadest reasonable interpretation during examination.”)).

Appellants further contend Ohno does not create a plot with amplitude against an x-axis of varied heater power, and therefore does not teach “generating a curve of the lock-in amplitude against varied heater power” (App. Br. 9–10; Reply Br. 3). The Examiner finds, and we agree, that Ohno teaches a graph containing signal amplitude data for each heater power value that is applied (Ans. 4–5 (citing Ohno ¶ 38 and Fig. 6)). Claim 1 does not require any specific parameters for presenting the graph of amplitude and power data, therefore we agree that the broadest reasonable interpretation of “generating a curve of the lock-in amplitude against varied heater power” does not preclude Ohno’s graph (i.e., Figure 6) that presents the same data in a different manner than Appellants’ specific example (Spec. ¶ 20 and Fig. 4; *see In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d at 1369). Ohno further teaches using the graphed data in the same manner as claimed, i.e., to find the “turning point” in the data when the read head makes contact with the disk’s surface (Ans. 4–5 (citing Ohno ¶ 38)).

Accordingly, we sustain the Examiner’s rejection of claims 1, 2, and 7 under 35 U.S.C. § 102(b) as anticipated by Ohno.

*Dependent Claims 6 and 16*

The Examiner finds that Ohno performs “routine mathematical operations” and that Ohno’s “curve” (i.e., Fig. 6) has linear portions until head/disk contact (Ans. 4–5 (citing Ohno ¶ 37)). However, we agree with Appellants’ contention that Ohno fails to disclose what is encompassed by “routine mathematical operations,” and thus fails to anticipate the limitation “*taking a derivative of the curve, resulting in a further curve*” (App. Br. 11–12; Reply Br. 3) (emphasis added). Accordingly, we do not sustain the Examiner’s rejection of claims 6 and 16 under 35 U.S.C. § 102(b) as anticipated by Ohno.

*Dependent Claims 8 and 9*

The Examiner finds Ohno’s teaching of improving the signal-to-noise ratio by removing components whose frequencies are not higher than five times the rotational frequency of the disk “suggest[s] a high sampling frequency relative to heater frequency” (Ans. 5 (citing Ohno ¶¶ 37–38)). We agree with the Appellants’ contention that such a “suggestion” of sampling frequency in Ohno does not anticipate the specific sampling frequencies claimed, and thus we do not sustain the Examiner’s rejection of claims 8 and 9 under 35 U.S.C. § 102(b).

*Independent Claim 13*

The Examiner finds Ohno’s pulsed input signal to the actuator of a transducer at a specified data track discloses “the select data track being offset from a single data track of the storage medium previously written to” (Ans. 6 (citing Ohno ¶¶ 26–30)). However, we are persuaded of Examiner

error by Appellants' contention that the cited portions of Ohno fail to mention the selected data track being *offset* from a single data track of the storage medium previously written to (App. Br. 13–14; Reply Br. 4–5) (emphasis added). Accordingly, we do not sustain the Examiner's rejection of claim 13, and claims 17 and 21 dependent thereon, under 35 U.S.C. § 102(b) as anticipated by Ohno.

### CONCLUSION

For the reasons discussed *supra*, we sustain the 35 U.S.C. § 102(b) rejection of claims 1, 2, and 7. We, however, do not sustain the 35 U.S.C. § 102(b) rejection of claims 6, 8, 9, 13, 16, 17, and 21. The Examiner has withdrawn the 35 U.S.C. § 102(b) rejection of claims 3–5, 10–12, 14, 15, and 18 (Ans. 2–3).

### DECISION<sup>4</sup>

We affirm the Examiner's rejection of claims 1, 2, and 7. We reverse the Examiner's rejection of claims 6, 8, 9, 13, 16, 17, and 21.

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-IN-PART

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<sup>4</sup> Although we reverse the anticipation rejection of claims 6, 8, 9, 13, 16, 17, and 21, this is not an indication that the Board views the claims as patentable without further consideration of the Ohno reference. We leave it up to the Examiner to consider whether a rejection of claims 6, 8, 9, 13, 16, 17, and 21 under 35 U.S.C. § 103 is warranted in light of the teachings of Ohno's amplitude sampling method (i.e., Ohno ¶ 38 and Fig. 6) and data transform method (i.e., Ohno ¶ 48 and Fig. 9).