THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 27

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte FREDERICK F. KAZMIERCZAK
and GODFREDO S. TEJADA

Appeal No. 97-3469
Application 08/188,427[1]

ON BRIEF

Before BARRETT, LEE, and CARMICHAEL, Administrative Patent Judges.

BARRETT, Administrative Patent Judge.

DECISION ON APPEAL

[1] Application for patent filed January 24, 1994, entitled "Recording Head Skewed Read Gap/Write Gap Positioning."

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1, 6, 11, and 15-30. Claims 2-5, 7-10, and 12-14 have been canceled.

We reverse.

BACKGROUND

The invention is in a rotary actuator for positioning a dual gap (write gap and read gap) transducing head relative to a track on a rotating recording medium and a method for reducing track misregistration. Track misregistration is where the read gap tries to read along a portion of the track where there is no information written or to read undesired information from an adjacent data track. The write gap, which is located in front of the read gap in the direction of relative movement of the head over the track, defines a shadow or "tunnel margin" of the track. The invention is that the read gap has a size and position to read information only from the shadow or the tunnel margin of the write gap at all positions of the head between the inner and outer radial positions over the rotating recording medium. The position errors of the read gap may be defined in terms of mathematical relationships as in claims 17 and 18.

Claim 1 is reproduced below.

1. In a rotary actuator for positioning a dual gap transducing head relative to a track on a rotating recording medium, the medium rotating about a first axis and the rotary actuator moving the head adjacent the medium about a second axis parallel to the first axis between an inner radial position adjacent an inner-most track and an outer radial position adjacent an outer-most track on the medium, the head comprising:

means for writing information on a recording medium, the means for writing information defining a shadow over the track, the shadow having a width comprising the radial width of information written on the track; and

means for reading information from the recording medium

wherein the reading means is spaced from the writing means and located completely within the shadow of the writing means at all positions between the inner and outer radial positions over the rotating recording medium.

The examiner relies on the following prior art:

Mowry	5,208,715	May 4, 1993

The specification stands objected to and claims 17-24 and 27-30 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to provide an enabling disclosure.

Claims 1, 6, 11, and 15-30 stand rejected under 35 U.S.C. § 102(e) as being anticipated by, or in the alternative, under § 103 as being unpatentable over Mowry.

We refer to the Final Rejection (Paper No. 12), the Examiner's Answer (Paper No. 19) (pages referred to as "EA__"), the [First] Supplemental Examiner's Answer (Paper No. 21) (pages referred to as "SEA__"), the [Second] Supplemental Examiner's Answer (Paper No. 23) (pages referred to as "2dSEA__"), and the [Third] Supplemental Examiner's Answer (Paper No. 25) (pages referred to as "3dSEA__") for a statement of the examiner's position. We refer to the Brief (Paper No. 16½), the Reply Brief (Paper No. 20) (pages referred to as "RBr__"), the [First] Supplemental Reply Brief (Paper No. 22) (pages referred to as "SRBr__"), and the [Second] Supplemental Reply Brief (Paper No. 24) (pages referred to as "2dSRBr__") for a statement of the appellants' position.

OPINION

X_I and X_O

It is noted that the relationships for X_I and X_O on page 5 of the specification are inconsistent with X_I and X_O as shown in figures 3 and 4. X_I and X_O, according to the relationships on page 5, are the perpendicular distances from the edge of the write gap path to the edge of the read gap path, not the

distances along the direction of the axis of the read gap to the edge of the track, as may be seen from the sketch in the attached Appendix. Appellants seem to recognize this in their arguments (e.g., Br7). One reason for providing the sketch is to show that the relationships are inherent in any head where the read gap is located completely within the shadow of the write gap. Cf. In re Rijckaert, 9 F.3d 1531, 1533 n.3, 28 USPQ2d 1955, 1957 n. 3 (Fed. Cir. 1993) (the Board's statement that the relationship between variables in a video tape recorder apparatus is "probably satisfied" by the prior art was speculative).

35 U.S.C. § 112, first paragraph, lack of enablement

The objection to the specification based on 35 U.S.C. § 112, first paragraph, lack of enablement is an "objection" under 35 U.S.C. § 132, which the Board has no jurisdiction to review. Such matters are reviewable by petition to the Commissioner. The Board's jurisdiction is limited to those matters involving the rejection of claims. In re Hengehold, 440 F.2d 1395, 1404, 169 USPQ 473, 480 (CCPA 1971). However, our decision regarding the § 112 rejection governs the merits of the objection.

The examiner states (EA3):

> Applicant's equations recited within the disclosure, see page 5, lines 5-10, are not seen to define any specific ranges or values and it is not clear how these values would correlate to the head, slider configuration and their positioning on the medium. Furthermore, the particular example added to the specification at page 5, between lines 22 and 23, simply set [sic] forth one prior art example of a head slider. It has not been shown that the particular equations may be used for other ranges of skew angles, or for other types of heads.

Appellants argue that one of ordinary skill in the art would have known how to apply the relationships on page 5, especially in view of the example added to page 5, between lines 22 and 23, by the amendment received September 14, 1995, (Paper No. 16) (entered as noted in Paper No. 18).

We agree with appellants. The write gap width W_1, the gap separation d, the positioning errors X_I and X_0, and the minimum and maximum skew angles " are known from the geometry and tolerances of the head and the rotary actuator. It is a simple matter to solve for the read gap width W_2 given the offset C or to solve for the offset C given the read gap width W_2. It would have taken no experimentation to use the relationships to design a rotary actuator for positioning a dual gap head relative to the track on a rotating recording medium so that the read gap is located completely within the

write gap shadow. Therefore, the rejection under § 112, first paragraph, is reversed.

35 U.S.C. §§ 102(b) or 103

Mowry is directed to a magnetic shield for a magnetoresistive head. The shield's geometry is designed to stabilize the head's magnetic domain pattern, particularly around the magnetoresistive sensor, to make it insensitive to external magnetic fields that occur during and after manufacture. Mowry shows the head construction in figures 3 and 4. A write gap 44 is defined by a gap insulator layer 46 between the terminating ends of a top magnetic pole 48 and a middle magnetic pole 50 (col. 4, lines 56-59). A sense (read) gap 52 is defined by gap insulator layers 54 and 56 and metal contact layer 58 between terminating ends of middle magnetic pole 50 and bottom magnetic pole or magnetic substrate 60 (col. 4, lines 59-63). A magnetoresistive sensor element 72 is disposed in the sense gap and has a width defined by the magnetoresistive layer 70 between metal contacts 58 (col. 5, lines 15-21).

The examiner states (EA4):

> Mowry discloses a dual-gap MR head which faces a medium 12, as shown in Figs. 3-4, the dual-gap head having: a write gap 44, 48, 50 (means for writing) which defines a shadow over a track of a recording medium. The means for writing would include at least the width of the top pole 48 to at most the width of middle magnetic pole 50 and insulative layer 44 (please see column 4, lines 50-59). From this, the writing means defines a shadow over the track of at least the width of pole 48 and as large as the width of middle pole 50 (as shown in FIG. 4). Mowry further shows a read gap 52 (means for reading) which is spaced from the write gap and is considered to be the middle active portion 72 of the MR element positioned between the contacts 58 (please see column 4, lines 59-63 along with column 5, lines 18-21). From the description above and FIG. 4, it is considered that the read gap is completely within the "shadow" of the write gap 44. Furthermore, since the write gap shadow is larger than the read gap shadow, Mowry shows an inside buffer area and an outside buffer area.

The examiner's finding that the shadow of the write gap could be "as large as the width of middle pole 50" (EA4) was not presented in the Examiner's Answer. Appellants reply as follows (RBr1-2):

> The Examiner's contention that the write gap of Mowry writes a pattern as wide as middle pole 50 is not supported by Mowry. Mowry does not state nor suggest that the flux path between top pole 48 and middle pole 50 extends the full width of middle pole 50. In fact, Mowry never discusses the width of the information actually written to the track. . . . The Examiner is merely guessing that the information written to the track would be as wide as middle pole 50 instead of relying on a teaching found in Mowry. Therefore, the statement that the writing means defines a shadow over the track "as large as the width of middle pole 50" is unsupported by

> Mowry and should be ignored in determining the patentability of the invention.

The examiner responds that appellants' arguments are "irrelevant because the read gap 72 defined by contacts 58 is clearly 'within the shadow' of pole tip 48, which defines the smallest width of the writing means and is considered to read on the appended claim language" (SEA2).

We agree with appellants that Mowry does not support a finding that the write gap is wider than the width of the top magnetic pole tip 48 and the examiner also appears to concede this point. Mowry shows the width of the write gap defined by the width of the top magnetic pole tip 50 as very slightly greater than the width of the read gap defined by the distance between contacts 58. It is difficult to support findings based on the drawings. See In re Wright, 569 F.2d 1124, 1127, 193 USPQ 332, 335 (CCPA 1977) ("Absent any written description in the specification of quantitative values, arguments based on measurement of a drawing are of little value."); In re Wilson, 312 F.2d 449, 454, 136 USPQ 188, 192 (CCPA 1962) ("Patent drawings are not working drawings."). Because there is no discussion of the relative widths of the write gap and read gap, no finding can be made that the elements in figure 4

are drawn to scale and that the write gap is wider than the read gap.

Assuming, arguendo, that the write gap is wider than the read gap, there is no evidence in Mowry to support a finding that the read gap will be positioned within the shadow of the write gap over all positions of the head between the inner and outer radial positions over the rotating recording medium. The examiner admits that Mowry does not expressly "teach having the read gap within the shadow of the write gap at all radial positions" (EA7), but maintains that "these parameters would be inherent characteristics of, or in the alternative, obvious [over Mowry]" (EA7). Inherency requires a certainty that a property or characteristic exists. "Inherency, however, may not be established by probabilities or possibilities." Continental Can Co. v. Monsanto Co., 948 F.2d 1264, 1269, 20 USPQ2d 1746, 1749 (Fed. Cir. 1991) (quoting In re Oelrich, 666 F.2d 578, 581, 212 USPQ 323, 326 (CCPA 1981)). It is mere speculation to find that the read gap will inherently be in the shadow of the write gap at all radial positions. Absent any teaching or suggestion that the read gap should be positioned in the shadow of the write gap,

there is no factual basis for an anticipation or obviousness rejection.

The examiner states (EA7):

> Since prior art discs are numerous and have various sizes, skew angle ranges may be small or large. From this and the fact that Mowry shows the read gap within the shadow of the write means (FIG. 4), it is considered that <u>at least</u> a small skew angle range would keep the reading means of Mowry within the shadow of the writing means, i.e., "at all positions between the inner and outer radial positions over the rotating recording medium", as set forth in the claims.

Appellants argue that the examiner is merely guessing that one of the large number of available disc drives "must have a skew angle range that keeps the reading means within the shadow of the writing means at all positions" (RBr2). We agree with appellants that the examiner's position is just speculation, which cannot take the place of evidence.

The examiner states that the claims read on a hypothetical medium having only one track and Mowry is considered to include such a medium (SEA2). Appellants have responded (SRBr1-2), the examiner has answered (2dSEA1-2), appellants have countered (2dSRBr1-3), and the examiner has responded (3dSEA1-2). We have considered the examiner's arguments, but find them unpersuasive. Claims 1, 6, and 11

all require a rotating recording medium having at least an inner track and an outer track. The rejection is over Mowry and Mowry has a number of tracks between the inner track and the outer track. To the extent the examiner focusses on just one track, this interpretation does not meet the language of the claims. The examiner has not shown how the claimed subject matter is anticipated by or obvious over Mowry.

The examiner states that "having the read gap within the 'shadow' of the write gap has been determined to be a well known design goal in order to prevent crosstalk between the tracks" (EA8; see also EA6). This fact has not been established by the examiner to be well known and is not discussed in Mowry; however, it might be inferred to be true from appellants' disclosure and the fact that appellants have not challenged this statement. Assuming, arguendo, that having the read gap in the write gap shadow was a well-known goal, the examiner has not established that decreasing the read gap width was a known or obvious way to accomplish the goal. We recognize that independent claims 1, 6, and 11 merely recite the result of having the read gap (means for reading) within the shadow of the write gap (means for

writing), and do not recite a read gap width less than the write gap width as the structure to accomplish the result. Claim 1 requires this structure because of the "means for reading information" language. However, absent prior art showing some other structure for keeping the read gap within the shadow of the write gap at all radial positions, appellants are entitled to claim broadly. The specification discusses an actuator controller to compensate for skew angle (specification, page 2, lines 13-14); presumably this controller does not cause the read gap to stay within the shadow of the write gap.

For the reasons stated above, the §§ 102(e) and 103 rejections of claims 1, 6, 11, and 15-30 are reversed.

CONCLUSION

The rejection of claims 17-24 and 27-30 under 35 U.S.C. § 112, first paragraph, is reversed.

The rejections of claims 1, 6, 11, and 15-30 under 35 U.S.C. § 102(e) and/or § 103 are reversed.

REVERSED

LEE E. BARRETT Administrative Patent Judge	)
JAMESON LEE Administrative Patent Judge	) BOARD OF PATENT APPEALS AND INTERFERENCES
JAMES T. CARMICHAEL Administrative Patent Judge	)

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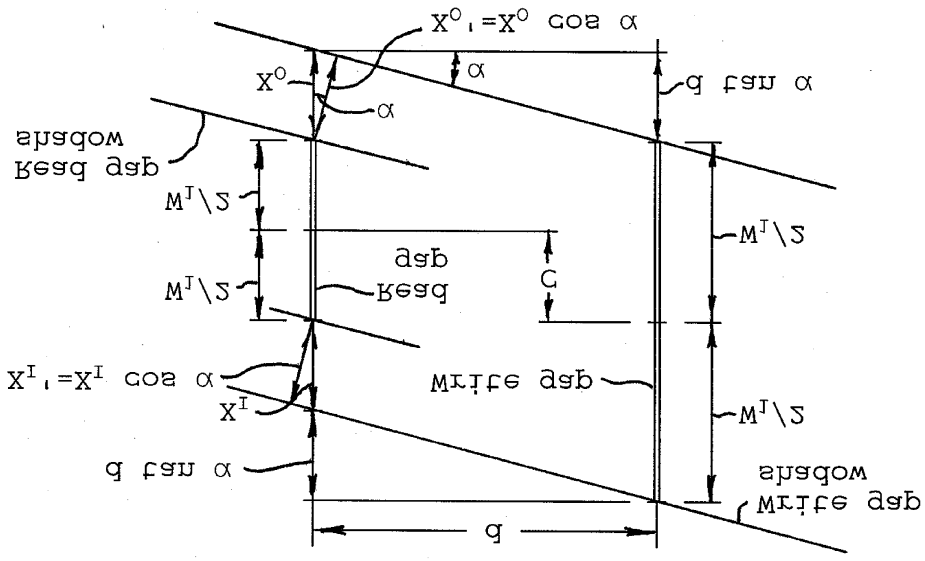
APPENDIX



$$X_1 = d\tan\alpha \% \frac{W}{2} \& C \& \frac{W}{2} = d\tan\alpha \& [C \& \frac{W \& W}{2}]$$

$$X_1 = \frac{W}{2} \% C \& \frac{W}{2} \& d\tan\alpha = \& d\tan\alpha \% [C \% \frac{W \& W}{2}]$$

$$X_1 = X_0 \cos\alpha = \{d\tan\alpha \& [C \& \frac{W \& W}{2}]\} \cos\alpha = d\sin\alpha \& [C \& \frac{W \& W}{2}] \cos\alpha$$

$$X_1 = X_0 \cos\alpha = \{\& d\tan\alpha \% [C \% \frac{W \& W}{2}]\} \cos\alpha = \& d\sin\alpha \% [C \% \frac{W \& W}{2}]] \cos\alpha$$