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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 25

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte FRANK E. STAGEBERG
and BRIAN S. ZAK

Appeal No. 1997-3473
Application 08/331,684

HEARD: January 24, 2000

Before THOMAS, HECKER and GROSS, Administrative Patent Judges.

HECKER, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 1 through 14. Claims 15 through 24 have been withdrawn from consideration as being directed to a non-elected invention. Appellants'invention relates to a thin film magnetic head. Looking at prior art Figure 1, thin film magnetic head 10 has a core 12 having top pole piece 14, bottom pole piece 16, pole center 30, coil windings 18 and gap 24. The top pole piece 14 includes top pole paddle 21 and top pole tip 20. Bottom pole piece 16 includes bottom pole paddle 23 and bottom pole tip 22. Pole center 30 joins top and bottom pole pieces 14 and 16 at a location remote from gap 24 to complete a magnetic circuit. A magnetic storage medium (not shown) may be placed near gap 24 such that information may be written on or read from the medium.

As shown in prior art Figure 3, insulation layers 28, 29, and 32, as well as coil windings 18, are located over bottom pole paddle 23 and do not extend out over bottom pole tip 22. Because there is a buildup of materials over bottom pole

paddle 23 and not over bottom pole tip 22, hill region 25 develops in the formation process. Metallic seed layer 33 is then typically deposited in a uniform thickness, and a photoresist layer 36 is then spun down onto seed layer 33, and therefore has a varying thickness, being thinnest at hill region 25. Photoresist layer 36 is then patterned for top pole piece 14, and when the patterned area of 36 is washed away, an opening or mold is formed in layer 36 for pole piece 14. However, because photoresist layer 36 is spun on in liquid form, it is much thinner at hill region 25 than it is in the regions above bottom pole tip 22 and bottom pole paddle 23. At hill region 25, layer 36 is insufficient to effectively act as a mold for top pole piece 14. As can be seen in prior art Figure 5, top pole piece 14 is higher than the top surface of layer 36, resulting in the deformation of pole piece 14 resulting in over plate at 35.

Appellants avoid over plate 35 by using a cavity insulation layer 64 (shown in Figure 9 at the hill region). Here, cavity insulation layer 64 provides extra thickness, effectively raising the level of top pole photoresist layer 66 (layer 36 in Figure 5), relative to that of top pole piece 44

(14 in Figure 5). Thus, the top pole piece 44 is lower than the top surface of photoresist layer 66, which allows the formation of top pole piece 44 with well defined edges with no over plate.

Representative independent claim 1 is reproduced as follows:

1. A thin film magnetic head comprising:

a bottom magnetic pole piece having a paddle and a tip region;

an insulation layer on the bottom magnetic pole piece;

a cavity layer having a predetermined thickness on the insulation layer, the cavity layer containing an aperture defining at least a portion of a paddle region for a top magnetic pole piece on the insulation layer; and

a top magnetic pole piece on the insulation layer having a paddle region having a shape at least partially defined by the aperture of the cavity layer and having a tip region, the top magnetic pole piece having a height at least partially defined by the thickness of the cavity layer.

The reference relied on by the Examiner is as follows:

Kawabe et al. (Kawabe) 5,245,493 Sep. 14, 1993

Claims 1 through 6, 8, 10 through 12 and 14 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Kawabe.

Claims 7, 9, and 13 stand rejected under 35 U.S.C. § 103 as being unpatentable over Kawabe.

Rather than repeat the arguments of Appellants or the Examiner, we make reference to the brief, reply brief, answer and supplemental answer for the respective details thereof.

OPINION

After a careful review of the evidence before us, we do not agree with the Examiner that claims 1 through 6, 8, 10 through 12 and 14 are anticipated under 35 U.S.C. § 102(b) by Kawabe, nor do
we agree that claims 7, 9 and 13 are unpatentable under 35 U.S.C. § 103 over Kawabe.

It is axiomatic that anticipation of a claim under § 102 can be found only if the prior art reference discloses every

element of the claim. ***See In re King***, 801 F.2d 1324, 1326, 231 USPQ 136, 138 (Fed. Cir. 1986) and ***Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co***., 730 F.2d 1452, 1458, 221 USPQ 481, 485 (Fed. Cir. 1984). "Anticipation is established only when a single prior art reference discloses, expressly or under principles of inherency, each and every element of a claimed invention." ***RCA Corp. v. Applied Digital Data Systems, Inc.***, 730 F.2d 1440, 1444, 221 USPQ 385, 388 (Fed. Cir. 1984), *cert. dismissed,* 468 U.S. 1228 (1984), *citing* ***Kalman v. Kimberly-Clark Corp.***, 713 F.2d 760, 772, 218 USPQ 781, 789 (Fed. Cir. 1983).

Appellants do not dispute that Kawabe teaches most of the claimed elements, much like Appellants' admitted prior art figures. However, Appellants argue that Kawabe does not teach their claimed cavity layer, and its relationship to the top magnetic pole piece.

The Examiner maintains that Kawabe teaches a cavity layer as 13, see Figure 7(a), with an aperture 16. The Examiner proposes three ways that the claim language is met. (1) Aperture 16 partly defines the shape of the top paddle, where

the top paddle extends through aperture 16 (answer-top of page 4). (2) The Examiner further states:

> Additionally, the area between insulation (13) and (25), filled by the magnetic pole (12), as depicted in FIGS. 12 and 13, is also considered to be a cavity substantially containing a top magnetic pole piece (12) in which a height of the top magnetic pole piece (12) is "defined" by the depth of the cavity. (Answer-page 4.)

And (3) where the Examiner states:

> Alternatively, the insulation portion (28) is considered to have a "cavity", i.e., if the magnetic head including portions (11-16, 21,22,25,26 and 81) were removed, a cavity would exist. (Answer-page 4.)

Appellants argue that Kawabe's aperture 16 is a contact hole, and as such, does not define at least **a portion of the shape** of the top paddle region (brief-page 5).

We agree with the Examiner that Kawabe's contact hole 16 can be considered an aperture, and part of that aperture can be looked upon as a cavity. "However, words of ordinary usage must nonetheless be construed in the context of the patent documents. Thus the court must determine how a person of experience in the field of this invention would, upon reading the patent documents, understand the words used to define the

invention." ***Toro Co. v. White Consolidated Industries, Inc.***, ____ F.3d ____, 53 USPQ2d 1065, 1067 (CAFC 1999). Thus, although a very small portion of Kawabe's top paddle conforms to the shape of "aperture 16", the **shape** of the top paddle, as construed in the context of the specification, is not determined by the portion which passes through 16. Thus, the Examiner's number (1) proposal does not meet the language **shape** which is presented in differing language in all independent claims.

With respect to the Examiner's number (2) proposal, that the cavity is that volume occupied by tip 12, we also find such a view to be contrary to the context of the specification. This is especially so when you consider that tip 12 is not the top paddle region, but merely overlaps part of the top paddle region. Thus, such a cavity would not contribute to the **shape** of the top paddle.

With respect to the Examiner's number (3) proposal, that Kawabe's insulation layer 28 could be considered the cavity, we again find such a view to be contrary to the context of the specification. This is especially so since layer 28 is a

protective layer, and does not serve to **shape** anything.

Claim 10 requires even more consideration of the specification since “means for” language is used in the claim. As argued by Appellants:

> The means forming a cavity must be construed in light of the corresponding structure, material or acts described in the specification and equivalents thereof. *In re Donaldson*, 29 U.S.P.Q.2d (BNA) 1845, 1848 (Fed. Cir. 1994). Thus, the cavity-forming means includes the cavity layer 64 and its aperture, substantially containing the top magnetic pole piece 44. (Brief-page 9.)

Thus, we will not sustain the 35 U.S.C. § 102(b) rejection of claims 1 through 6, 8, 10 through 12 and 14.

The Examiner has rejected claims 7, 9 and 13 under 35 U.S.C. § 103 as unpatentable over Kawabe as recited for the 35 U.S.C.
§ 102(b) rejection, taking official notice of the “seed layer” being “notoriously old and well known in the art”. We note that Appellants have not contested the Examiner’s position on the seed layer, nor made specific comments on this rejection.

However, since the Examiner’s basic premise, that Kawabe meets all the limitations of the independent claims is not convincing, and since claims 7, 9 and 13 inherently contain

the

same unmet limitations, we will also not sustain the 35 U.S.C. § 103 rejection of these claims.

In view of the foregoing, the decision of the Examiner rejecting claim 1 through 6, 8, 10 through 12 and 14 under 35 U.S.C. § 102(b), and claims 7, 9 and 13 under 35 U.S.C. § 103 is reversed.

REVERSED

James D. Thomas Administrative Patent Judge	)	
Stuart N. Hecker Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
Anita Pellman Gross Administrative Patent Judge	)	

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