

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 35

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte TOHRU KIRA

Appeal No. 96-1707
Application 08/221,999¹

HEARD: April 7, 1999

Before THOMAS, DIXON, and FRAHM, **Administrative Patent Judges.**

DIXON, **Administrative Patent Judge.**

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 7-14 and 29-36, which are all of the claims pending in this application.

¹Application for patent filed April 4, 1994. According to appellant, this application is a continuation of application 07/871,540, filed April 21, 1992, now abandoned.

BACKGROUND

The invention is directed to a combined thin film magnetic head that has two separate heads formed on a single substrate, one for analog and the other for digital operation. The two heads are fabricated on the same substrate and placed linearly adjacent to each other rather than in a stacked arrangement.

Independent claim 7 is representative of the invention and reproduced as follows:

A combined thin film magnetic head comprising:

a first yoke magnetic head; and

a second yoke magnetic head having at least a portion of a recording and reproducing track overlapped with the first yoke magnetic head and having longer recording and reproducing track width than said first yoke magnetic head formed on the same substrate, wherein

said first yoke type magnetic head includes;

a first lower yoke of a magnetic thin film formed approximately parallel to the surface of the substrate,

a first interlayer insulating layer formed on an upper surface of the first lower yoke,

a first electromagnetic transducing element provided on the first interlayer insulating layer,

a second interlayer insulating layer formed on the first electromagnetic transducing element, and

a first upper yoke of a magnetic thin film formed along an upper surface of the second interlayer insulating layer, said first upper yoke and said first lower yoke

at a front end portion providing a first front gap, in use to be in contact with a magnetic recording medium,

for picking up magnetic flux of the magnetic recording medium; and wherein

a second lower yoke formed on a surface of said substrate, opposing to said first lower yoke with a third interlayer insulating film interposed and extending at a distance behind said first lower yoke with a surface which is in contact in use with and sliding relative to a magnetic recording medium at a front end,

a fourth interlayer insulating layer formed to have approximately trapezoidal cross section at a region behind said first lower yoke on an upper surface of said third interlayer insulating layer,

a second electromagnetic transducing element provided on the fourth interlayer insulating layer,

a fifth interlayer insulating layer formed on the second electromagnetic transducing element and

a second upper yoke of a magnetic thin film formed along an upper surface of the fifth interlayer insulating layer,

said first upper yoke and said second upper yoke being formed of the same layer of magnetic thin film; and wherein

said second yoke magnetic head includes an upper yoke provided by combining magnetically said first lower yoke and said second upper yoke, said first lower yoke and said second lower yoke opposing with each other with said

third interlayer insulating layer interposed as a gap layer at a front end serving as a surface which in use is in contact with and sliding relative to a magnetic recording medium,

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thus providing a second front gap picking up magnetic flux of the magnetic recording medium.

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

Nomura et al. (Nomura)	4,065,797	Dec. 27, 1977
Jones, Jr. (Jones)	4,404,609	Sep. 13, 1983
Otsuka et al. (Otsuka)	4,789,910	Dec. 06, 1988

Admitted prior art in the specification (pages 1-7 and Figures 12-16)

Claims 7-9, 11, 13, 14, 29-34 and 36 are rejected under 35 U.S.C. § 103 over Otsuka in view of appellant's admitted prior art in the specification (pages 1-7 and Figures 12-16) and Jones.

Claims 10, 12 and 35 are rejected under 35 U.S.C. § 103 over Otsuka in view of appellant's admitted prior art in the specification (pages 1-7 and Figures 12-16) and Jones as applied against claims 7-9, 11, 13, 14, 29-34 and 36 further in view of Nomura.

Rather than reiterate the conflicting viewpoints advanced by the Examiner and the appellant, we make reference to the briefs and answers for the details thereto.

OPINION

After a careful review of the evidence before us we agree with the Examiner that claims 7-9, 11, 13, 14, 29-34 and 36 are properly rejected under 35 U.S.C. § 103 and we

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will sustain the rejection of claims 7-9, 11, 13,14, 29-34 and 36. We disagree with the Examiner that claims 10,12 and 35 are properly rejected under 35 U.S.C. § 103 and we will not sustain the rejection of claims 10,12 and 35. As a consequence of our review, we make the determinations which follow.

**REJECTION OF
CLAIMS 7-9, 11, 13,14, 29-34 and 36 UNDER §103**

Claims 7-9, 11, 13,14, 29-34 and 36 are rejected under 35 U.S.C. § 103 over Otsuka in view of appellant's admitted prior art in the specification (pages 1-7 and Figures 12-16) and Jones. The Examiner has set forth the rejection in detail including corresponding teachings in the prior art references for the claimed elements and the motivation for the combination of references. (See answer at pages 3-7.) We agree with the Examiner and further elaborate below.

Otsuka teaches the basic structure of an individual head and the required layering on the substrate as discussed by the examiner. (See answer at pages 3-5.) The admitted prior art shows a conventional two head structure on the same substrate

where the heads are set forth in a stacked arrangement. (See answer at pages 5-6.) The specification also discusses the well known and recognized problems of higher number of layers on the substrate, lower yields and higher production costs associated with the

stacked head arrangement. (See specification at pages 6-7.) The admitted prior art recognizes that the stacked two head orientation has problems and would have motivated the skilled artisan to planarize the two head arrangement. To improve the yields, it would have been obvious to one of ordinary skill in the art at the time of the invention to reduce the number of layers thereby reducing the manufacturing costs. (See answer at pages 6-7.) The skilled artisan would have found the teachings of Jones which teaches the planarizing of a single head device with transmission of the signal using a second gap to a second portion of the single head, linearly spaced from the portion closest to the signal source. Jones also discusses some of the manufacturing considerations and benefits achieved by the planar structured device. Jones teaches the skilled artisan that the signal may be picked up from the tape and transmitted a distance to a second area within the transducer. The skilled artisan would have recognized that Jones teaches a single head device where the gap size would have been the same due to the single head. It would have been obvious to one of

ordinary skill in the art at the time of the invention to know that the same basic structure may be used for a two head device as a means of transmitting the signal to the second head farthest from the source. The skilled artisan would have also known that the type of

heads would have dictated the exact dimensions of the gap configuration.

REJECTION OF CLAIMS 10, 12 and 35 UNDER §103

Claims 10, 12 and 35 are rejected under 35 U.S.C. § 103 over Otsuka in view of appellant's admitted prior art in the specification (pages 1-7 and Figures 12-16) and Jones and applied against claims 7-9, 11, 13, 14, 29-34 and 36 further in view of Nomura. (See answer at pages 10-11).

We disagree with the Examiner. As discussed above, we agree with the Examiner concerning the basic combination of references and the teachings of the references. Claims 10 and 12² add a limitation to the claimed invention to include "a trench portion having a prescribed depth formed in a substrate on which said combined thin film magnetic head is formed." The Examiner has argued that it would have been obvious to one of ordinary skill in the art at the time of the invention to include a groove "to prevent the magneto-resistive element from directly facing the ferromagnetic material (the second lower yoke made of highly permeable film of NiFe)." (See answer at page 10.) Appellant argues that the trench portion is directly below the first yoke magnetic head and second yoke magnetic head. (See brief at pages 18-21 and reply at pages 6-7.) Furthermore, appellant argues that in claim 10, the second lower yoke is formed along the bottom of the

² We note that the Examiner indicated in the answer at pages 2-3 that an error was present in claim 12, but we further note that the amendment entered February 3, 1994 deleted the word "head" accidentally from claim 12 in two places in line 5 after "magnetic."

trench. We agree with the appellant that the Examiner has made assertions which are not clearly supported by the teachings of Nomura as to why it would have been obvious to one of ordinary skill in the art at the time of the invention to form the trench/groove beneath both heads in the configuration as claimed. Nomura does not teach skilled artisans that a trench is useful in preventing leakage due to magnetic flux in the linear/planar configuration as set forth in the language of claims 10 and 12.

Since all the limitations of claim 12 are not taught or suggested by the applied prior art, we cannot sustain the Examiner's rejection of appealed claim 35 which depends therefrom, under 35 U.S.C. § 103.

RESPONSE TO ARGUMENTS

Appellant argues that the rejection of the claims lacks motivation to combine the teachings of the references. (See brief at page 9.) We disagree. Appellant argues that the rejection of the claims uses improper hindsight reconstruction in the motivation to combine the teachings of the references. (See brief at page 10.) We disagree.

Appellant argues that the rejection of the claims is unclear as to the Examiner's basis for the "compactness" rationale. (See brief at page 11-12.) We disagree and have further elaborated upon the line of reasoning used in the combination of the teachings/references. (See above.) Jones teaches and motivates skilled artisans to form the head structure

having 2 gaps on the same plane. The skilled artisan would have been motivated, as the Examiner states, to use this same/similar configuration where other 2 gap systems may be useful such as in a 2 head device. (See answer at pages 12-14). We find that the Examiner has not used only bits and pieces of the Jones teachings, but merely used some of the basic teachings to modify that which was known in the art concerning conventional 2 head devices. (See brief at pages 12-13.) We observe that a skilled artisan must be presumed to know something about the art apart from what the references disclose (**see In re Jacoby**, 309 F.2d 513, 516, 135 USPQ 317, 319 (CCPA 1962)), and the conclusion of obviousness may be made from "common knowledge and common sense" of the person of ordinary skill in the art (**see In re Bozek**, 416 F.2d 1385, 1390, 163 USPQ 545, 549 (CCPA 1969)). Moreover, skill is presumed on the part of those practicing in the art. **See In re Sovish**, 769 F.2d 738, 743, 226 USPQ 771, 774 (Fed. Cir. 1985). We hold that the skilled artisan would have been motivated to combine the teachings of the references, and furthermore, the

teachings would have taught or fairly suggested to one of ordinary skill in the art at the time of the invention to combine the teachings to achieve the invention as claimed.

Next we consider appellant's argument that even if the references are properly

combined, the claimed invention would not be achieved. (See brief at pages 13-14.) We disagree. Appellant argues that the claimed invention "provides a structure with two heads having different sized gaps on and in contact with the same surface of a substrate." (See brief at page 14.) The admitted prior art teaches the desire and need for 2 heads on the same substrate wherein the heads are oriented in the same manner as the prior art stacked individual heads. The admitted prior art also discloses the known deficiencies in the individual and combined stacked heads which would have motivated skilled artisans to modify the design by forming the stacked arrangement on the same plane as taught by Jones. The result would have been to form both heads on the same surface of the substrate as discussed above. With respect to the different gap sizes, we note that the language of the claims 7 and 11 merely set forth the presence of two gaps and not the size of the gaps. Moreover, the type of head would have dictated the size of the gap as discussed above.

With respect to appellant's argument to secondary considerations concerning the IEEE article, we agree with both the appellant's and the Examiner's statements.

Appellant argues that the evidence of publication should be considered by the Examiner. We agree and find that the Examiner did consider the evidence, but the Examiner did not find the evidence submitted to be persuasive in light of the *prima facie* case of

obviousness set forth by the Examiner in the rejection. Furthermore, it is our conclusion that the evidence adduced by the Examiner is sufficient to establish a ***prima facie*** case of obviousness with respect to dependent claims 8, 9, 13, 29 and 30 as grouped by appellant. (See brief at page 7.)

Appellant argues the mere fact that this article was published and that "all manuscripts considered for publication are subject to peer review" is evidence of nonobviousness. (See brief at pages 15-16.) Appellant further argues that the fact that the article was published is "evidence (facts) that the Appellant's device has been accepted by peers, (at a minimum those skilled in the art) as meritorious. The IEEE article is indicative of professional approval of the merits of the invention." We disagree with appellant's characterization of the article as "acceptance by peers" or "professional approval" merely by the publication of the article. We have considered the article as did the Examiner, but do not find the article by itself to be persuasive. Appellant has not provided any evidence to support the position that the mere publication of the invention/device amounts to approval and/or acceptance within the field or by his peers. Moreover, appellant has not provided any discussion of how the disclosure of the paper corresponds to the language of claims 7 and 11 beyond a discussion of a "two head structure . . . in a linear position." (See brief at page 15.)

With respect to the arguments that the Examiner has not addressed the limitations

concerning claim 31, 14 and 34, the Examiner briefly discusses the limitations in the answer at pages 7-8 and 15. The Examiner has not discussed the specific location of the elements, but considers placement of either type of head as an obvious choice with a combination of the two types of heads in the combined teachings. (See answer at pages 7-8.) We agree with the Examiner. Appellant cites to the article for support of the increase of stability and productivity, but does not show support in the originally filed specification. Appellant has not argued claim 14 separately, therefore it is treated with claims 31 and 34. (See 37 CFR 1.192(c)(7).)

With respect to appellant's argument to claim 36, the Examiner has set forth a response which discusses the use of a ferrite substrate which would obviate the need for the second lower yoke on top of the substrate. (See brief at pages 18-19.) Therefore, the first and second magnetic heads would contact the same surface of the substrate and would be linear in the combination, as the Examiner has stated. We agree.

CONCLUSION

To summarize, the decision of the Examiner rejecting claims 7-9, 11, 13,14, 29-34 and 36 under 35 U.S.C. § 103 is affirmed. The decision of the Examiner rejecting claims 10, 12 and 35 under 35 U.S.C. § 103 is reversed. The decision of the Examiner is

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affirmed-in-part.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART

JAMES D. THOMAS)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
JOSEPH L. DIXON)	APPEALS AND
Administrative Patent Judge)	INTERFERENCES
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ERIC S. FRAHM)	
Administrative Patent Judge)	

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Birch, Stewart, Kolasch & Birch
P.O. Box 747
Falls Church, VA 22040-0747