

The opinion in support of the decision being entered today was **not** written for publication and is **not** binding precedent of the Board.

Paper No. 30

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte AKIRA KOUCHIYAMA

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Appeal No. 1998-1632  
Application No. 08/536,045

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HEARD: August 15, 2001

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Before WALTZ, TIMM, and PAWLIKOWSKI, Administrative Patent Judges.

PAWLIKOWSKI, Administrative Patent Judge.

**DECISION ON APPEAL**

This is a decision on appeal from the examiner's final rejection of claims 1-14, which are all of the claims pending in this application.

We **reverse**.

**BACKGROUND**

Appellant's invention relates to a method of forming a magneto-resistance effect thin film for a magneto-resistance effect type magnetic head or a method of forming a magneto-resistance effect magnetic head. Claims 1-14 are reproduced in the attached Appendix.

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

Shirahata et al. (Shirahata)	4,260,466	Apr. 07, 1981
Sato et al. (Sato)	4,576,699	Mar. 16, 1986
Ueda et al. (Ueda)	4,824,724	Apr. 25, 1989
Yamada et al. (Yamada)	4,929,320	May 29, 1900
Fontana, Jr. et al. (Fontana)	4,940,511	Jul. 10, 1990
Chaug et al. (Chaug)	5,505,834	Apr. 09, 1996

(Filed Dec. 29, 1993)

Claims 1-14 stand rejected under 35 U.S.C. § 103 as being unpatentable over either Sato or Yamada, in view of either Ueda or Shirahata, further in view of Chaug or Fontana.

Rather than reiterate all of the conflicting viewpoints advanced by the examiner and appellant regarding the above-noted rejections, we make reference to the examiner's answer (Paper No. 19) for the examiner's complete reasoning in support of the rejection, and to the appellant's brief (Paper No. 18) and reply brief (Paper No. 20), for appellant's arguments thereagainst. We do refer to some of the positions held by the examiner and appellant throughout this opinion.

**OPINION**

In reaching our decision in this appeal, we have given careful consideration to the appellant's specification and claims, to the applied prior art references, and to the respective positions articulated by the appellant and the examiner. As a consequence of our review, we make the determinations which follow.

Appellant states that his claimed invention is directed to a new method of forming a thin film for a magneto-resistance effect type magnetic head (claim 1) or to a method of manufacturing a magneto-resistance effect magnetic head (claims 4, 7, and 11). (Brief, page 6).

Appellant argues, *inter alia*, that Sato and Yamada are directed to making a magneto-optical recording medium, not a magneto-resistive film or magneto-resistive effect magnetic head. (Brief, page 9). Appellant also argues that the secondary references of Ueda and Yamada are also directed to making a magneto-optical recording medium, and not a magneto-resistive film or magneto-resistive effect magnetic head. (Brief, page 10).

In his reply brief, appellant reiterates that the process of Yamada and Sato is directed to making a magneto-optical recording medium and not to a magneto-resistive film. (Reply brief, pages 1-2). Appellant argues that a magneto-optical recording medium is very different from a magneto-resistance effect type magnetic head. Appellant states that the preferred physical properties of each are very different.

(Reply brief, page 3). Appellant explains that the magneto-optical recording media in each of Yamada, Sato, Ueda and Shirata all include a high coercive force. (Reply brief, page 3). On the contrary, appellant argues that in producing a magneto-resistance effect thin film, the goal is to provide a low coercive force of less than 1.0 O<sub>e</sub>. (Reply brief, page 3).

The examiner recognizes that the combination of Sato or Yamada in view of Ueda or Shirahata concerns magneto-optical recording media and not a magneto-resistance effect thin film or a magneto-resistance effect type magnetic head. (Answer, page 5).

The examiner relies upon the references of Chaug and Fontana for teaching that it is known in the art to use NiFe material in making magneto-resistance films. (Answer, page 5, office action of Paper No. 14, pages 2-3). The examiner concludes that it would have been obvious to employ the method of the primary references in manufacturing a magneto-resistant film or head in view of the teachings of Chaug or Fontana, which disclose "the same basic structure and the same magnetic material NiFe". (Answer, page 5). The examiner reiterates this point in his rebuttal, and states, "it has been established . . . that the same or similar device having the magnetic layer composed of NiFe can be used in the manufacture of a magnetic head". Based upon this, the examiner concludes that it would have been obvious to have used the same process

of Yamada or Sato for manufacturing a magnetic head since it is well known in the art that the magnetic head also employs the same material for the magnetic material (Answer, pages 6-7).

It is well settled that a prima facie case of obviousness is established by showing that some objective teaching or suggestion in the applied prior art taken as a whole and/or knowledge generally available to one of ordinary skill in the art would have led that person to the claimed invention as a whole, including each and every limitation of the claims, without recourse to the teachings in appellant's disclosure. See generally, In re Oetiker, 977 F.2d 1443, 1447-48, 24 USPQ2d 1443, 1446-47 (Fed. Cir. 1992) (Nies, J., concurring); In re Laskowski, 871 F.2d 115, 117, 10 USPQ3d 1397, 1398-99 (Fed. Cir. 1989); In re Fine, 837 F.2d 1071, 1074-76, 5 USPQ2d 1596, 1598-1600 (Fed. Cir. 1988); In re Geiger, 815 F.2d 686, 688, 2 USPQ2d 1276, 1278 (Fed. Cir. 1987). The mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification. In re Gordon, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984).

Here, we agree with appellant's statement made on pages 13-14 of their brief, that the cited references lack any suggestion for the modification as proposed by the examiner. Specifically, we cannot find any suggestions in the cited references which would have motivated one skilled in the art to have utilized the method of Sato or Yamada to make the

magneto-resistance film of Chaug or Fontana. In this context, we strongly disagree with the examiner's reasoning that the teachings of Chaug or Fontana of using a NiFe material in making a magneto-resistance film are sufficient motivation to utilize the process of Sato or Yamada in making a magneto-resistance film. As pointed out by appellant, one seeking to provide an improved magneto-resistance effect thin film or head would not look to Sato or Yamada because neither of these references are directed to making these types of films. Furthermore, these references teach the forming of a film having a high coercive force property, which is detrimental to a magneto-resistance effect thin film. (Brief, page 11). The examiner never addresses these particular issues raised by appellant. These circumstances lead us to conclude that the examiner, in making his Section 103 rejection, has fallen victim to the insidious effect of hindsight syndrome wherein that which only the inventor has taught is used against its teacher. W.L. Gore & Assocs. V. Garlock, Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984).

Hence, we reverse the rejection of record.

#### **CONCLUSION**

To summarize, the decision of the examiner to reject claims 1-14 under 35 U.S.C. § 103 is reversed.

**REVERSED**

THOMAS A. WALTZ	)	
Administrative Patent Judge	)	
	)	
	)	
	)	
	)	BOARD OF PATENT
CATHERINE TIMM	)	APPEALS
Administrative Patent Judge	)	AND
	)	INTERFERENCES
	)	
	)	
	)	
BEVERLY A. PAWLIKOWSKI	)	
Administrative Patent Judge	)	

BAP/sld

**APPENDIX**

1. A method of forming a magneto-resistance effect thin film for a magneto-resistance effect type magnetic head, in which a single unit layer of an Ni-Fe alloy thin film layer or a superlattice thin film layer of Ni and Fe is formed as a unit layer or a plurality of said unit layers are laminated, comprising the step of:

providing a base material for forming thereon a thin film for a magneto-resistance effect type magnetic head;  
forming said thin film for said magneto-resistance effect type magnetic head by sputtering Ni and Fe on said base material from an Ni target and an Fe target disposed separately while said Ni target and said Fe target are both being rotated relatively to said base material.

2. The method according to claim 1, wherein said unit layer has a thickness of less than 10Å.

3. The method according to claim 1, wherein an amount of NI in a composition of the whole of said magneto-resistance effect thin film formed of said Ni-Fe alloy thin film layer or said superlattice layer of Ni and Fe is selected in a range of from 75 to 90 weight %.

4. A method of manufacturing a magneto-resistance effect magnetic head comprising the steps of:  
providing a base material for forming thereon a thin film for a magneto-resistance type magnetic head;

forming said thin film of Ni-Fe by sputtering Ni and Fe on said base material from an Ni target and an Fe target disposed separately while said Ni target and said Fe target and said base material are relatively rotated.

5. The method according to claim 4, wherein said unit has a thickness of less than 10Å.

6. The method according to claim 4, wherein an amount of Ni in a composition of said thin film is selected in a range of from 75 to 90 weight %.

7. A method of manufacturing a magneto-resistance effect magnetic head comprising the steps of:

providing a base material for forming thereon a thin film for a magneto-resistance type magnetic head;

forming said thin film of Ni-Fe by sputtering Ni and Fe on said base material from an Ni target and a Fe target disposed separately while said Ni target and said Fe target and said base material are relatively rotated; and

forming a plurality of thin layers of Ni and Fe alternately.

8. The method according to claim 7, wherein an amount of Ni in the composition of the whole magneto-resistance effect thin film is selected to be between 75 to 90 atomic percent.

9. The method according to claim 7, wherein the thin layers of Ni and Fe are selected to be less than 10Å thick.

10. The method according to claim 7, wherein a magneto-resistance changing ratio  $\Delta R/R_0$  has a value exceeding 3% and a coercive force  $H_{ch}$  of less than 1.0.

11. A method of manufacturing a magneto-resistance effect magnetic head comprising the steps of:

providing a base material for forming thereon a thin film for a magneto-resistance type magnetic head;

forming said thin film of Ni-Fe by sputtering Ni and Fe on said base material from an Ni target and a Fe target disposed separately while said Ni target and said Fe target and said base material are relatively rotated; and

12. The method according to claim 11, wherein an amount of Ni in the composition of the whole magneto-resistance effect thin film is selected to be between 75 to 90 atomic percent.

13. The method according to claim 11, wherein the thin layers of Ni and Fe are selected to be less than 10Å thick.

14. The method according to claim 11, wherein a magneto-resistance changing ratio  $\Delta R/R_0$  has a value exceeding 3% and a coercive force  $H_{ch}$  of less than 1.0.

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SONNENSCHNEIN, NATH & ROSENTHAL  
P. O. BOX 0661080  
WACKER DRIVE STATION  
CHICAGO, IL 60606-1080

