

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 45

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UNITED STATES PATENT AND TRADEMARK OFFICE

PAT & TM OFFICE
BOARD OF PATENT APPEALS
AND INTERFERENCES

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte HAROLD B. SHUKOVSKY, MICHELLE MARTIN,
MICHAEL MALLARY and ALAN L. SIDMAN

Appeal No. 94-0312
Application 07/831,615¹

ON BRIEF

Before MEROS, HAIRSTON and CARDILLO, Administrative Patent Judges.

MEROS, Administrative Patent Judge.

DECISION ON APPEAL

This appeal is from the examiner's rejection of claims 1, 3-20, 25, 27-31 and 33, all of the claims pending in the application.

¹ Application for patent filed February 6, 1992. According to applicants, the application is a continuation of Application 07/345,719, filed May 1, 1989.

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The rejected claims are directed to a process for forming at least one pole of a magnetic device and to a magnetic device made by the process.

Claims 1 and 25 are illustrative of the claimed subject matter and read as follows:

1. A process for forming and annealing at least one pole of a magnetic device, comprising the steps of:

(a) determining a maximum permeance for a chosen pole width,

(b) relating that permeance to an anisotropy field for a pole having the chosen pole width,

(c) determining a concentration of cobalt that is needed in a mixture of deposition material from which the pole is to be formed so that the pole, after being annealed, will have approximately said anisotropy field that is related to the maximum permeance,

(d) forming the at least one pole from the mixture of deposition material, the pole having approximately the desired cobalt concentration and having an initial anisotropy field of a strength less than that of said anisotropy field that is related to the maximum permeance, and

(e) annealing the pole in a manner selected to cause the initial anisotropy field of the pole to increase to approximately said anisotropy field that is related to the maximum permeance.

25. A magnetic device formed by a process comprising the steps of

(a) determining a desired permeance for a chosen pole width of at least one pole of the magnetic device,

(b) relating that permeance to an anisotropy field for a pole having the chosen pole width,

(c) determining a concentration of cobalt that is needed in a mixture of deposition material from which the pole is

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to be formed so that the pole, after being annealed, will have said anisotropy field that is related to the desired permeance,

(d) forming the at least one pole from the mixture of deposition material, the pole having approximately the desired cobalt concentration and having an initial anisotropy field of a strength less than that of said anisotropy field that is related to the desired permeance, and

(e) annealing the pole in a manner selected to cause the initial anisotropy field of the pole to increase to approximately said anisotropy field that is related to the desired permeance.

The examiner relies on the following references:

Morisako et al. (Morisako), "Effect of Third Element on Electrodeposited Permalloy Film for Thin-Film Magnetic Head", Electronics and Communications in Japan, Vol. 61-C, No. 2, 1978, pp.88-95.

Nakamura et al. (Nakamura), "Analysis of Domain Structure of Single Pole Perpendicular Head", IEEE Transactions on Magnetics, Vol. Mag-21, No. 5, September 1985, pp. 1578-1580.

Claims 1, 3-20, 31 and 33 stand rejected under 35 USC § 103 as being unpatentable over Nakamura in view of Morisako.²

We will not sustain this rejection.

Claims 1, 3-17, 19 and 31 are directed to a process for forming at least one pole of a magnetic device which comprises the step of "annealing the pole in a manner selected to cause the initial anisotropy field of the pole to increase to approximately said anisotropy field that is related to the

² We consider "3-10" recited in the statement of the rejection in the Examiner's Answer (page 3) to have been intended to be "3-20" as recited in the final rejection.

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maximum permeance." The examiner simply points to the teaching in Nakamura (page 1578) of controlling the strength of the anisotropy field H_k of a pole of a magnetic device in the range of 2 Oe to 17 Oe by the annealing time. Appellants argue that while that may be true, Nakamura does not teach or suggest annealing in the manner selected to cause the initial anisotropy field of the pole to increase as called for in the claimed process (Brief, paragraph bridging pages 6 and 7). In response, the examiner simply states, without explanation, "[I]f anisotropy increases for applicants, the increase would also be found in the annealing step of the reference" (Answer, page 5). Appellants argue, however, that annealing increases anisotropy field strength only if the annealing is performed under appropriate conditions and that Nakamura nowhere hints that the annealing should be performed in such a manner (Reply Brief, paragraph bridging pages 5 and 6). The examiner has not responded with a countervailing argument. Thus, the examiner has not met his burden of establishing prima facie obviousness of the claimed process as a whole, particularly as to the manner of conducting the annealing step.

Claims 18-20 and 33 are directed to a process for producing at least one pole of a magnetic device which comprises forming a cobalt alloy pole from a mixture of deposition materials while "maintaining magnetostriction near zero." Not

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only has the examiner failed to even mention said feature of the claimed process in his statement of the rejection, he has utterly failed to respond to or dispute appellants' argument that the cited references do not even mention magnetostriction, much less teach maintaining magnetostriction near zero (Brief, page 8). It is axiomatic that all limitations in a claim must be considered and that, as here, it constitutes reversible error to ignore a specific limitation that distinguishes the claimed invention over the cited prior art. In re Boe, 505 F.2d 1297, 184 USPQ 38 (CCPA 1974); In re Angstadt, 537 F.2d 498, 190 USPQ 214 (CCPA 1976).

For the foregoing reasons, we reverse the examiner's § 103 rejection of claims 1, 3-20, 31 and 33.

We now turn to the rejection of claims 25 and 27-30 under 35 USC § 103 as being unpatentable over Nakamura. These claims are directed to a magnetic device described in product-by-process format. The determination of the patentability of a product depends, of course, not on its method of preparation but on the product itself. If the product in a product-by-process claim is the same as or obvious from a product of the prior art, it is unpatentable even though the prior art product was made by a different process. In re Brown, 459 F.2d 531, 173 USPQ 685 (CCPA 1972); In re Fessmann, 489 F.2d 742, 180 USPQ 324 (CCPA 1974); In re Thorpe, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985). In our view, on this record there is no discernable distinction

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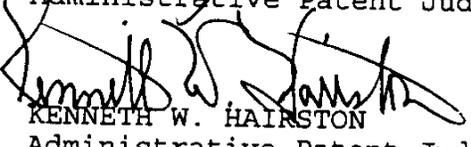
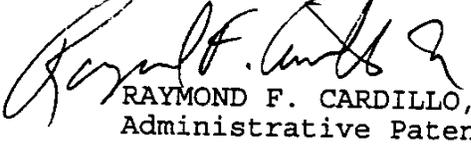
between the here claimed magnetic device and the magnetic device comprising an annealed cobalt-containing pole having an anisotropy field H_k in the range of 2 Oe and 17 Oe disclosed by Nakamura. Thus, under the rationale of the cases cited supra, appellants have the burden of proving that the claimed product is not the same as or obvious from the magnetic device disclosed by Nakamura. Appellants have simply asserted, without proving, that Nakamura does not disclose a product that is "identical or only slightly different than" the claimed product. Thus, since appellants have not met their burden of proving that the claimed magnetic device differs unobviously from the magnetic device disclosed by Nakamura, the rejection of claims 25 and 27-30 is affirmed.

In summary, the rejection of claims 1, 3-20, 31 and 33 is reversed and the rejection of claims 25 and 27-30 is affirmed.

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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

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EDWARD J. MEROS)	
Administrative Patent Judge)	
)	
KENNETH W. HAIRSTON)	
Administrative Patent Judge)	
)	
RAYMOND F. CARDILLO, Jr.)	
Administrative Patent Judge)	

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