

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte CARL A. HELMS and
EDWARD VIRGIL DENISON

Appeal No. 2006-1152
Application No. 10/175,975

ON BRIEF

Before HAIRSTON, BLANKENSHIP, and SAADAT, Administrative Patent Judges.

HARISTON, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1 through 17.

The disclosed invention relates to a read head structure that comprises a magnetoresistive element with a grating region on at least one surface, and a magnetic element formed at an end of the magnetoresistive element. The magnetic element terminates before it encroaches on the grating region.

Claim 1 is illustrative of the claimed invention, and it reads as follows:

1. A read head structure, comprising:

a magnetoresistive element deposited on a substrate, the magnetoresistive element having a grating region on at least one surface of the magnetoresistive element;
a first magnetic element formed at a first end of the magnetoresistive element, the first magnetic element terminating before it encroaches on the grating region of the magnetoresistive element.

The references relied on by the examiner are:

Suenaga et al. (Suenaga)	4,556,925	Dec. 3, 1985
Watanabe et al. (Watanabe)	6,172,859	Jan. 9, 2001

Claims 1 through 17 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Suenaga in view of Watanabe.

Reference is made to the briefs and the answer for the respective positions of the appellants and the examiner.

OPINION

We have carefully considered the entire record before us, and we will reverse the obviousness rejection of claims 1 through 17.

The applied references are both concerned with reducing Barkhausen noise in magnetoresistive heads. Suenaga accomplishes the goal of Barkhausen noise reduction by adding protrusions at the longitudinal ends of the magnetoresistive elements 33 and 38 (Figures 5, 6 and 10; Abstract; column 5, lines 46 through 51). Watanabe accomplishes the noted goal of Barkhausen noise reduction by the specific layers chosen for the magnetoresistive element 15 and 22, and the surrounding magnetic layers (e.g., hard magnetic thin film layer 26).

According to the examiner (answer, page 3), the magnetoresistive element 33 in Suenaga has “a grating region 80 (Fig. 5) on at least one surface of the magnetoresistive element,” and

Watanabe shows a read head wherein a first magnetic element 26 is formed at a first end of a magnetoresistive element 22 (Figure 7; column 12, lines 27 and 28; column 25, line 19). Based upon the teachings of the references, the examiner is of the opinion (answer, pages 3 and 4) it would have been obvious to one of ordinary skill in the art to add the first magnetic element disclosed by Watanabe onto the device disclosed by Suenaga “in order to further suppress formation of domains, which reduces Barkhausen [sic, Barkhausen] noise.”

Appellants argue (brief, pages 17 and 18) “the fact that *Suenaga* and *Watanabe* are unrelated to each other and to the claims, combined with the fact that the proposed motivation is not logical, shows that the examiner must have used Applicants’ own disclosure as a motivation to combine the references.” Appellants also argue that the alleged motivation to “further suppress domain walls and Barkhausen noise” is not suggested by the applied references, that “the motivation is flawed because there would be no way to predict how adding one or more complicated layers to the *Suenaga* device would change the magnetic field,” and that “[n]o matter how *Suenaga* and *Watanabe* are combined, there is no reason to assume that a first magnetic element would terminate before encroaching on a grating region (even if a grating region existed in either reference)” (brief, page 21).

We agree with the appellants’ arguments. Although Suenaga and Watanabe are concerned with reducing Barkhausen noise in magnetoresistive element devices, they solve the problem by two completely different techniques. Neither reference gives any indication that the Barkhausen noise needs to be further reduced below the level already reached by the specifically chosen technique. More importantly neither reference provides any insight as to how the techniques are related or how they would function together in a magnetoresistive element device. Without any supporting evidence in the record, the examiner merely concluded that the

Barkhausen noise would be further reduced by the use of the Watanabe magnetic element in the Suenaga device. The factual question of motivation to combine the teachings of the references should be resolved based on evidence of record, and not on the subjective belief and unknown authority expressed by the examiner. In re Lee, 277 F.3d 1338, 1343-44, 61 USPQ2d 1430, 1434 (Fed. Cir. 2002). In summary, the obviousness rejection of claims 1 through 15 is reversed.

The obviousness rejection of claims 16 and 17 is reversed because the examiner has not demonstrated how the modified device in Suenaga stabilizes a magnetic field in the three noted spatially separated regions of the read head.

DECISION

The decision of the examiner rejecting claims 1 through 17 under 35 U.S.C. § 103(a) is reversed.

REVERSED

)
Kenneth W. Hairston)
Administrative Patent Judge)
)
)
)
) BOARD OF PATENT
Howard B. Blankenship)
Administrative Patent Judge)
)
)
)
)
Mahshid D. Saadat)
Administrative Patent Judge)
)

KWH/eld

Wayne P. Bailey
Storage Technology Corporation
One Storage Tek Drive
Louisville, CO 80028-4309