

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 23

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

---

Ex parte GREGORY S. MOWRY

---

Appeal No. 97-1166  
Application 08/198,848<sup>1</sup>

---

ON BRIEF

---

Before HAIRSTON, JERRY SMITH and FLEMING, Administrative Patent Judges.

JERRY SMITH, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1-22. An amendment

---

<sup>1</sup> Application for patent filed February 18, 1994.

Appeal No. 97-1166  
Application 08/198,848

after final rejection was filed on October 30, 1995 and was entered by the examiner. This amendment amended claims 1, 11 and 19, and cancelled claims 21 and 22. Therefore, this appeal is directed to the rejection of claims 1-20.

The invention pertains to a magnetoresistive (MR) sensor for reading information from the track of a magnetic storage medium. Specifically, a giant MR element is provided which has three electrical contacts spatially positioned along the direction of the track. A first variable resistance current path is established between the first and second contacts, and a second variable resistance current path is established between the first and third contacts. Magnetic information recorded on the track passes the electrical contacts at different times and causes the variable resistance of the current paths to change in a measurable way.

Representative claim 1 is reproduced as follows:

1. A sensor for reading information from one of a plurality of longitudinal tracks of a magnetic storage medium moving underneath the sensor, the sensor comprising:

a slider having a side rail, the side rail having a bottom surface, wherein the slider is arranged to position the bottom surface of the side rail adjacent a first track of the plurality of longitudinal tracks;

a giant magnetoresistive element positioned on the bottom surface of the side rail;

Appeal No. 97-1166  
Application 08/198,848

first, second, and third electrical contacts spatially positioned on the giant magnetoresistive element and along the first track such that a first current path having a first variable resistance is formed between the first and second electrical contacts and a second current path having a second variable resistance is formed between the first and third electrical contacts; and

wherein a first magnetic field representing information from the first track passes the first, second and third electrical contacts at different times causing a change in the first variable resistance in the first current path when the first magnetic field becomes positioned substantially underneath the first current path, and wherein the first magnetic field causes a change in the second variable resistance in the second current path when the first field becomes positioned substantially underneath the second current path.

The examiner relies on the following references:

Garnier et al. (Garnier)	3,855,625	Dec. 17, 1974
Miura	4,179,720	Dec. 18, 1979
Mowry	4,851,944	July 25, 1989
Hitachi (European Patent Application)	0 490 327	June 17, 1992

IBM, "Longitudinal Read Sensor For Magnetic Disks," IBM Technical Disclosure Bulletin, Vol. 33, No. 3B, August 1990, pages 209-211.

Claims 1-20 stand rejected under 35 U.S.C. § 103. As evidence of obviousness the examiner offers IBM in view of Hitachi, Miura and Mowry with respect to claims 1-9, 19 and 20, and adds Garnier with respect to claims 10-18.

Rather than repeat the arguments of appellant or the examiner, we make reference to the briefs and the answers for the respective details thereof.

OPINION

We have carefully considered the subject matter on appeal, the rejections advanced by the examiner and the evidence of obviousness relied upon by the examiner as support for the rejections. We have, likewise, reviewed and taken into consideration, in reaching our decision, the appellant's arguments set forth in the briefs along with the examiner's rationale in support of the rejections and arguments in rebuttal set forth in the examiner's answers.

It is our view, after consideration of the record before us, that the collective evidence relied upon and the level of skill in the particular art would not have suggested to one of ordinary skill in the art the obviousness of the invention as set forth in claims 1-20. Accordingly, we reverse.

We consider first the rejection of claims 1-9, 19 and 20 under 35 U.S.C. § 103 as being unpatentable over IBM in view of Hitachi, Miura and Mowry. These claims stand or fall together [brief, page 5]. IBM is cited by the examiner as a conventional form of MR element which is situated on the bottom surface of a slider. Hitachi is cited only to support the position that giant MR elements were conventional in the art. Miura is cited to show that it was known to spatially place electrical contacts in the

Appeal No. 97-1166  
Application 08/198,848

direction of a magnetic track and to differentially compare currents to monitor magnetic fields. Mowry is cited to show that it was known to use three electrical contacts to divide an MR element into separate variable resistance regions. The examiner has explained why it would have been obvious to the artisan to combine the teachings of IBM, Hitachi, Miura and Mowry to arrive at the invention of claim 1 [answer, pages 4-8].

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.,

Appeal No. 97-1166  
Application 08/198,848

776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985), cert. denied, 475 U.S. 1017 (1986); ACS Hospital Systems, Inc. v. Montefiore Hospital, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

Appellant has addressed the Deere factual determinations noted above, and appellant argues that the applied references, whether considered singly or together, do not teach the recitations of claim 1. Specifically, appellant argues that the claimed spatial relationship of the three electrical contacts along the magnetic track and the two current paths formed by a magnetic field passing under the three contacts at different times is not taught or suggested by the references cited by the examiner [brief, pages 7-10]. The examiner responds that Mowry is cited for the teaching of three electrical contacts and Miura is cited for the current paths being established at different times as the track moves [answer, pages 9-14]. Appellant disputes that the teachings of the applied prior art would lead to the claimed invention.

Miura is the only one of the applied references that is concerned with monitoring variable resistance currents at different spatial locations along the direction of a magnetic track. Miura teaches two MR elements (11, 12) for developing these variable currents. Each of the MR elements has two electrodes for measuring the current through that MR element. Thus, the currents in Miura flow within each MR element in a direction which is perpendicular to the track direction. There is no evidence that Miura desires or intends for current to flow between the two MR elements in the direction of the track. Therefore, there are no contacts in Miura which create a current path which exists in the direction of the magnetic track.

The examiner has referred to Figure 5 of Miura as suggesting such an arrangement of contacts. Figure 5 of Miura is simply an electrical schematic of a bridge for electrically combining the outputs of the MR elements. We fail to see how such an electrical schematic can be suggestive of a physical spatial relationship of the components depicted therein. In fact, the artisan would recognize from Miura's Figure 5 that a current path is created only along each MR element 11 and 12 and not between them. Since Miura teaches that each MR element is spatially positioned perpendicular to the direction of the

Appeal No. 97-1166  
Application 08/198,848

magnetic track, there is clearly no current path in Miura which spatially exists in the direction of the magnetic track.

The examiner also seems to suggest that the three contact MR arrangement of Mowry, if substituted for Miura's two contact MR arrangement would result in the claimed invention. We do not agree. In our view, Mowry would simply suggest to the artisan that either one of the MR elements 11 and 12 of Miura could be replaced by a three electrode MR element as taught by Mowry. However, regardless of whether the Miura system uses a two electrode MR element as shown therein or uses a three electrode MR element as taught by Mowry, the variable current paths would still flow only in a direction perpendicular to the track direction and not in a direction along the magnetic track.

Since both independent claims 1 and 19 require the presence of current paths which run spatially along the direction of the magnetic track, and since none of the applied prior art suggests such a current path despite the examiner's assertions to the contrary, the examiner has failed to present a case for the obviousness of this claimed feature. Therefore, we do not sustain the rejection of claims 1-9, 19 and 20.

We now consider the rejection of claims 10-18 under 35 U.S.C. § 103 as being unpatentable over IBM in view of Hitachi,

Appeal No. 97-1166  
Application 08/198,848

Miura and Mowry, and further in view of Garnier. These claims stand or fall together [brief, page 5]. Appellant has presented no additional arguments in support of the patentability of these dependent claims. Since the additionally applied reference to Garnier fails to overcome the deficiencies noted above in the basic combination of references, the invention of dependent claims 10-18 is also not suggested by the applied prior art. Therefore, we also do not sustain the rejection of claims 10-18.

In summary, we have not sustained either of the examiner's rejections of the claims. Accordingly, the decision of the examiner rejecting claims 1-20 is reversed.

REVERSED

Appeal No. 97-1166  
Application 08/198,848

	)	
KENNETH W. HAIRSTON	)	
Administrative Patent Judge	)	
	)	
	)	
	)	BOARD OF PATENT
JERRY SMITH	)	
Administrative Patent Judge	)	APPEALS AND
	)	
	)	INTERFERENCES
	)	
MICHAEL R. FLEMING	)	
Administrative Patent Judge	)	

Robert M. Angus  
KINNEY & LANGE  
Suite 1500  
625 Fourth Avenue South  
Minneapolis, MN 55415-1659