

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(2) is not binding precedent of the Board.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. 14

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

---

Ex parte ALLEN E. SCHULTZ, L. VINCENT RUSCELLO and WILLIAM H. NUNNE

---

Appeal No. 1998-1480  
Application No. 08/741,277

---

ON BRIEF

---

Before THOMAS, KRASS and HECKER, Administrative Patent Judges.

KRASS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 16, 18, 19, 21, 23 and 24, all of  
the claims remaining in the application.

Appeal No. 1998-1480  
Application No. 08/741,277

The invention is directed to magnetoresistive transducers. More particularly, an insulator layer is employed between two magnetic layers wherein the insulator layer is a composite of two layers, one a layer of insulating oxide material and the other a layer of thermally conductive, high electrical resistivity diamond-like carbon (DLC). The composite layer is said to take advantage of the superior properties of both DLC and insulating oxide to overcome the disadvantages of each.

Representative independent claim 16 is reproduced as follows:

16. A magnetoresistive transducer having a magnetoresistive layer, a first magnetic layer forming a soft adjacent layer operatively associated with the magnetoresistive layer, a second magnetic layer forming a magnetic shield for the transducer, and an electrical insulator sandwiched between the first and second magnetic layers, characterized in that the electrical insulator contains a layer of insulating oxide material adjacent one of the first and second magnetic layers and a layer of thermally conductive, high electrical resistivity diamond-like carbon adjacent the other of the first and second magnetic layers.

The examiner relies on the following reference:

Schwarz	5,331,493	Jul 19, 1994
---------	-----------	--------------

Claims 16, 18, 19, 21, 23 and 24 stand rejected under 35 U.S.C. § 103 as unpatentable over Schwarz.

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

OPINION

We reverse.

The examiner applies Figure 2 of Schwarz to the claims as follows:

Read module 32 is the claimed magnetoresistive transducer having a magnetoresistive layer (38), a soft adjacent layer identified in column 4, lines 37-52 and a second magnetic layer, shield (46). As disclosed by Schwarz, the insulating layers (36), (44) and (48) may be made of either diamond-like carbon or an insulating oxide.

The examiner recognizes that Schwarz does not disclose the insulating layers being *both* diamond-like carbon and an oxide. However, the examiner concludes that it would have been obvious to provide for such a bilayered insulator in Schwarz because the reference discloses these materials as being equivalents.

We agree with appellants that the mere equivalency of carbon-like diamond and an insulating oxide for use as insulators would not have provided any incentive for the artisan to employ *both* of these materials in a bilayered insulating layer, as claimed.

The examiner counters with the argument that appellants are assuming that there is only one insulating layer in Schwarz but that there are actually three layers,(36), (44) and (48), two of which are sandwiched between the first and second magnetic layers. We are unpersuaded by the examiner's

reasoning.

Clearly, the first magnetic layer forming a soft adjacent layer and operatively associated with the magnetoresistive layer (38) in Schwarz is layer (40). The second magnetic layer forming a shield is layer (46) in Schwarz. The instant claims then call for an electrical insulator sandwiched between the first and second layers. Sandwiched between layers (40) and (46) in Schwarz are layers (42) and (44). Layer (44) is the only insulating layer as layer (42) is clearly a conducting layer which provides a low resistance path ... (see column 5, lines 33-38 of Schwarz). Therefore, layer (42) of Schwarz cannot be an electrical insulator that exhibits a high electrical resistivity, as required by the instant claims. Accordingly, if Schwarz is to make the instant claimed subject matter obvious, within the meaning of 35 U.S.C. § 103, it must be shown that it would have been obvious to make insulating layer (44) a bilayered material comprising a layer of an insulating oxide material adjacent one of the first and second magnetic layers (i.e., layers (40), (46)) and a layer of thermally conductive, high electrical resistivity diamond-like carbon adjacent the other of the first and second magnetic layers.

Clearly, from the disclosure of Schwarz, it would have been obvious to make the insulating layer (44), which is adjacent second magnetic layer (46), of *either* diamond-like carbon *or* an insulating oxide material. However, there is no suggestion whatsoever, within the four corners of Schwarz, for

Appeal No. 1998-1480  
Application No. 08/741,277

making insulating layer (44) a bilayered insulator comprising *both* a diamond-like carbon *and* an oxide material, as required by the instant claims.

Accordingly, the examiner's decision rejecting claims 16, 18, 19, 21, 23 and 24 under 35 U.S.C. § 103 is reversed.

REVERSED

JAMES D. THOMAS        )  
Administrative Patent Judge )  
  )  
  )  
  ) BOARD OF PATENT  
ERROL A. KRASS         ) APPEALS AND  
Administrative Patent Judge ) INTERFERENCES  
  )  
  )  
  )  
STUART N. HECKER        )  
Administrative Patent Judge )

Appeal No. 1998-1480  
Application No. 08/741,277

eak/vsh

Appeal No. 1998-1480  
Application No. 08/741,277

Robert M. Angus  
Kinney & Lange, P.A.  
The Kenney & Lange Building  
312 South Third Street  
Minneapolis, MN 55415