

The opinion in support of the decision being entered today is  
*not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* CHUAN-BAO WANG,  
P. RICHARD WARBURTON AND  
BETH TOMASOVIC

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Appeal 2007-0300  
Application 10/101,960  
Technology Center 1700

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Decided: August 16, 2007

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Before EDWARD C. KIMLIN, BRADLEY R. GARRIS, and  
JEFFREY T. SMITH, *Administrative Patent Judges*.

GARRIS, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on an appeal under 35 U.S.C. § 134 from the final rejection of claims 1, 4, 6, 8-38, 40, and 43-52. We have jurisdiction under 35 U.S.C. § 6.

Appellants claim a method for forming a sensing or compensating bead for a gas sensor which comprises depositing by CVD layers of

refractory material. According to Appellants, the CVD technique avoids the shrinkage and cracking problems associated with the prior art technique of applying refractory material in liquid form to the wire coil followed by drying to obtain the desired refractory coating (Specification 4-5, 9).

Representative claim 1, the sole independent claim on appeal, reads as follows:

1. A method for forming a sensing or compensating bead for a gas sensor, comprising the steps of:

forming a coil of metal wire;

depositing onto the coil of wire by CVD at least one first layer of an insulating, crack-free refractory coating having a thickness between 1 and 10  $\mu\text{m}$ , to form thereby a coil of coated wire;

depositing onto the coil of coated wire by CVD a further refractory layer having a thickness of 20 to 100  $\mu\text{m}$  to sheath the coil to stabilize the coil dimensionally, and

depositing onto the sheathed and stabilized coil at least one further layer to convert the coated wire coil to a sensing or compensating bead.

The references set forth below are relied upon by the Examiner as evidence of obviousness:

Allman	US 4,068,021	Jan. 10, 1978
Khilnani	US 4,560,585	Dec. 24, 1985
Koda	US 4,938,928	Jul. 3, 1990
Poli	US 5,401,470	Mar. 28, 1995
Okajima	US 5,821,402	Oct. 13, 1998

Claims 1, 4, 6, 8-21, 24, 37, 38, 40, and 43-46 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Khilnani and Allman in view of Koda; claims 22, 23, 25, 26, 34-36, and 47-52 are correspondingly rejected over these references and further in view of Poli; and claims 27-33 are correspondingly rejected over Khilnani, Allman, and Koda in view of Okajima.

Appellants do not argue that the applied reference evidence fails to establish a prima facie case of obviousness. Instead, it is the Appellants' position that their claimed method is shown to be nonobvious by the two § 1.132 Declarations filed January 7, 2005 and May 31, 2005. In the Appellants' view, these declarations evince that unexpectedly superior results are obtained when refractory layers are formed by the CVD technique of their claimed method in comparison with the coating and drying technique of the Allman reference (Appeal Br. 5-10; Reply Br. 1-3).

For a number of reasons, the Appellants' declaration evidence of record is inadequate to establish nonobviousness.

First of all, it is questionable whether the results shown by these declarations are actually unexpected. *Pfizer, Inc. v. Apotex, Inc.*, 480 F.3d 1348, 1371, 82 USPQ 1321, 1338 (Fed. Cir. 2007) ("[A]ny superior property must be unexpected to be considered as evidence of non-obviousness"). This is because, the January 7, 2005 Declaration inappropriately uses different refractory materials in comparing the respective methods of the appealed claims and of Allman. That is, the claimed method uses a silica refractory whereas the Allman' method uses an alumina refractory (Declaration 2-3). For this reason, it is unclear whether the superior results

displayed by the claimed method were due to the use of a different deposition method (i.e., CVD) or the use of a different refractory material (i.e., silica).

In this regard, it is significant that Appellants' claim 1 method recites "refractory coating" generally and thus is not limited to silica specifically. In fact, dependent claim 11 clearly reveals that independent claim 1 includes numerous refractory materials including the alumina material used by Allman. Under these circumstances, it is apparent that the declaration comparison could have and should have used the same alumina refractory for both the claim 1 method and the Allman method. Only in this way would a comparison reveal that any differing results are due to the differing application techniques rather than differing refractory materials.

The declaration evidence is also deficient because results are shown only for the claim 1 method wherein silica is used as the refractory material. As explained above, claim 1 encompasses the use of numerous refractory materials in addition to silica. As a consequence, even if the Declarations were assumed to show unexpected results, the showing would be inadequate to overcome the Examiner's *prima facie* case of obviousness because it is not commensurate in scope with the claimed range. *See In re Peterson*, 315 F.3d 1325, 1329, 65 USPQ2d 1379, 1383 (Fed. Cir. 2003) and *In re Grasselli*, 713 F.2d 731, 743, 218 USPQ 769, 778 (Fed. Cir. 1983).

Concerning these matters, Appellants state that they "do not believe, however, that the difference in materials is in any way responsible for the difference in results; rather, it is the difference in coating methods in the production of the presently claimed two layer coating by CVD which results

in the superior results according to the invention" (Reply Br. 2). The fatal infirmity of this statement is that the record contains no evidence to support the Appellants' belief. For all we know based on this record, it is only the silica embodiment of Appellants' claimed method which yields superior results (i.e., when alumina is used, the claimed method may produce results which are indistinguishable from those of the Allman<sup>1</sup> method).

In addition, we emphasize that, although secondary considerations such as unexpected results must be taken into account, they do not necessarily control the obviousness conclusion. *Pfizer, Inc. v. Apotex, Inc.*, 480 F.3d at 1372, 82 USPQ2d at 1338. Unexpectedly superior results will not necessarily overcome a strong case of obviousness. *Id.*

On the record of this appeal, it is questionable whether Appellants have shown unexpected results, and certainly they have not shown unexpected results which are commensurate in scope with claim 1. Therefore, we share the Examiner's ultimate determination that the proffered declaration evidence of nonobviousness does not outweigh the applied reference evidence of obviousness.<sup>1</sup> We hereby sustain, therefore, each of the § 103 rejections advanced by the Examiner on this appeal.

The decision of the Examiner is affirmed.

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<sup>1</sup> In criticizing the declaration evidence, the Examiner states that "neither declaration compares the results to coating with a plasma CVD process, as the proposed rejection requires (Koda teaches plasma CVD)" (Answer 6). By this statement, the Examiner appears to suggest that the Appellants must compare the claimed invention to itself which is unquestionably erroneous. *In re Arakelian*, 410 F.2d 429, 432, 161 USPQ 604, 606 (CCPA 1969).

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(iv).

AFFIRMED

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