

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(2) is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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**Ex parte** TAKAHIRO SUZUKI,  
KOUJI OKAZAKI, YOSHIAKI MATSUBARA  
and MAMORU KODERA

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Appeal No. 96-1476  
Application 08/186,515<sup>1</sup>

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HEARD: MARCH 8, 1999

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Before THOMAS, JERRY SMITH and HECKER, **Administrative Patent Judges.**

HECKER, **Administrative Patent Judge.**

**DECISION ON APPEAL**

This is a decision on appeal from the final  
rejection of claims 1, 4, 6 and 8. The Examiner has indicated

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<sup>1</sup> Application for patent filed January 26, 1994.

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that claims 3 and 7 are currently objected to as depending from a rejected

claim, but otherwise allowable. Therefore, claim 5 would have the same status since it depends from claim 3. Claim 2 has been canceled.

The invention relates to a spark plug with a built in pressure sensor, which is suitable for use in an internal combustion engine. At page 10 **et seq.** of the specification and Figure 1, Appellants disclose the spark plug 1 with a built in pressure sensor 12. The metal shell 8 has a threaded portion 10 for mounting the spark plug 1 on the cylinder head 21 of an internal combustion engine. A slit 13 is formed as a pressure introducing channel, along an axis of the plug 1, in the threaded portion 10 of the metal shell 8. Slit 13 allows combustion gas to flow to pressure sensor 12.

The independent claim 1 is reproduced as follows:

1. A spark plug with a built-in pressure sensor, said spark plug being suitable for use in an internal combustion engine, wherein the pressure sensor is built in a mounting base of a metal shell in a direction to convert a variation in a tightening load of said spark plug on a cylinder head of said internal combustion engine into an electrical signal, said metal shell being provided with at

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least one pressure-introducing channel to communicate a combustion chamber of an associated cylinder of said internal combustion engine with the pressure sensor, said pressure-introducing channel being a slit formed along an axis of said spark plug on a threaded portion of said metal shell.

The Examiner relies on the following references:

Steinke	4,969,353	Nov. 13, 1990
Amano et al. (Amano)	4,984,905	Jan. 15, 1991

Claims 1, 4, 6 and 8 stand rejected under 35 U.S.C. § 103 as being unpatentable over Amano and Steinke.

Rather than reiterate the arguments of Appellants and the Examiner, reference is made to the brief and answer for the respective details thereof.

#### **OPINION**

After a careful review of the evidence before us, we will not sustain the rejection of claims 1, 4, 6 and 8 under 35 U.S.C. § 103.

The Examiner has failed to set forth a **prima facie** case. It is the burden of the Examiner to establish why one having ordinary skill in the art would have been led to the

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claimed invention by the reasonable teachings or suggestions found in the prior art, or by a reasonable inference to the artisan contained in such teachings or suggestions. **In re Sernaker**, 702 F.2d 989, 995, 217 USPQ 1, 6 (Fed. Cir. 1983).

"Additionally, when determining obviousness, the claimed invention should be considered as a whole; there is no legally recognizable 'heart' of the invention." **Para-Ordnance Mfg. v. SGS Importers Int'l.**, 73 F.3d 1085, 1087, 37 USPQ2d 1237, 1239 (Fed. Cir. 1995), **citing W. L. Gore & Assocs. v. Garlock, Inc.**, 721 F.2d 1540, 1548, 220 USPQ 303, 309 (Fed. Cir. 1983), **cert. denied**, 469 U.S. 851 (1984).

With regard to the rejection of claim 1, Appellants argue that the "pressure-introducing channel is a **slit formed along an axis of said spark plug on a threaded portion of said metal shell.**" (brief at page 9). Looking at claim 1, we find the corresponding language "said pressure-introducing channel being a slit formed along an axis of said spark plug on a threaded portion of said metal shell", lines 9-11. The Examiner responds that Steinke shows a pressure introducing channel 35 in Figure 2, which is a slit in the metal shell,

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and an alternative embodiment in Figure 1 as "slit 25", answer at page 6. We note that Steinke refers to 25 and 35 as bore portions (column 2 lines 41-44 and 55). The dictionary defines bore as a "cylindrical hole" and slit as a "long narrow cut or opening".<sup>2</sup>

We do not agree with the Examiner that Steinke meets or suggests the slit claimed by Appellants. "Bore", as disclosed by Steinke and as defined in the dictionary, is not a "slit" as claimed by Appellants and as defined in the dictionary.

We also consider the Examiner's argument that it is a mere alternative of Steinke to locate a slit on the threaded portion, it being a rearranging/relocating of parts involving only routine skill in the art (answer at page 5). The Federal Circuit states that "[t]he mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." ***In re Fritch***, 972 F.2d 1260, 1266 n.14, 23 USPQ2d 1780, 1783-84 n.14 (Fed. Cir.

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<sup>2</sup> Webster's Ninth New Collegiate Dictionary, pages 169 and 1109 (1986)

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1992), *citing In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). "Obviousness may not be established using hindsight or in view of the teachings or suggestions of the inventor." *Para-Ordnance Mfg. v. SGS Importers Int'l*, 73 F.3d at 1087, 37 USPQ2d at 1239, *citing W. L. Gore & Assocs. v. Garlock, Inc.*, 721 F.2d at 1551, 1553, 220 USPQ at 311, 312-13. We find no suggestion in the prior art as to why one of ordinary skill in the art would find it desirable to locate the channel of Steinke on the threaded portion in the form of a slit.

For these reasons we will not sustain the rejection of claim 1.

Appellants' claim 6 contains the same limitation, "pressure-introducing channel being formed as a slit which interrupts said threaded section and extends over the threaded section along an axis of the spark plug", lines 10-13. We will not sustain the rejection of claim 6 for the same reasons, *supra*.

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Since the remaining claims, 4 and 8, depend from claims 1 and 6 and thereby contain the same limitations, we will not sustain their rejection.

We have not sustained the rejection of claims 1, 4, 6 and 8 under 35 U.S.C. § 103. Accordingly, the Examiner's decision is reversed.

**REVERSED**

PATENT

James D. Thomas )  
Administrative Patent Judge )  
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Jerry Smith ) BOARD OF  
Administrative Patent Judge ) APPEALS AND  
) INTERFERENCES  
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