

**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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 22

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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**Ex parte** CHRISTOPHER W. BROWN  
and JAMES J. ALBERTS

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Appeal No. 1997-3930  
Application 08/394,596

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ON BRIEF

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Before FLEMING, LALL, and BARRY, **Administrative Patent Judges.**

FLEMING, **Administrative Patent Judge.**

**DECISION ON APPEAL**

This is a decision on appeal from the final rejection of claims 1 through 5, all of the claims pending in the present application.

The invention relates to a fiber optic sensor for detecting and characterizing petroleum products. On pages 3 and 4 of

the specification, Appellants disclose that Fig. 1 discloses a fiber optic sensor 10 which is made from a silver halide fiber optic. The refractive index of the silver halide is 2.2. About 10 cm of the fiber without a cladding is placed in a trough 12 containing a petroleum sample 14. The proximal end 16 of the fiber optic 10 is connected to a spectrometer 18. Light is transmitted through the fiber optics to and from the sample. The spectrometer obtains an evanescent spectrum of the hydrocarbon sample from the non-cladded portion. On page 8 of the specification, Appellants disclosed that the evanescent spectrum is a fingerprint of the sample, and the fingerprint is compared to a library of evanescent spectra to determine the identity of the sample.

Independent claim 1 is reproduced as follows:

1. A fiber optic sensor for the detection of hydrocarbons which comprises:

a metal halide fiber optic having a refractive index greater than the refractive index of the hydrocarbons to be detected, the fiber optic characterized by a non-cladded portion;

means to place the non-cladded portion in a sample containing hydrocarbons;

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means to transmit a signal through the fiber optic to and from the sample; and

means to obtain an evanescent spectrum of the hydrocarbon sample from the non-cladded portion.

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The Examiner relies on the following references:

Silvus et al. (Silvus) 1982	4,352,983	Oct. 5,
Schnell et al. (Schnell) 28, 1986	4,620,284	Oct.
Fuller et al. (Fuller) 1990	4,955,689	Sept. 11,
Minekane <sup>1</sup> 1981 (Japan)	56-107149	Aug. 25,

Claims 1 and 3 through 5 stand rejected under 35 U.S.C. § 103 as being unpatentable over Silvus in view of Minekane and Fuller.

Claim 2 stands rejected under 35 U.S.C. § 103 as being unpatentable over Silvus, Minekane and Fuller and further in view of Schnell.

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

#### OPINION

We will not sustain the rejection of claims 1 through 5

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<sup>1</sup> Translated by the Ralph McElory Translation Co. on October 1997. Copy provided to Appellants.

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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 claimed invention by the express teachings or suggestions found in the prior art, or by implications 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, Inc.**, 73 F.3d 1085, 1087, 37 USPQ2d 1237, 1239 (Fed. Cir. 1995), **cert. denied**, 519 U.S. 822 (1996) (**citing W.L. Gore & Assocs., Inc. v. Garlock, Inc.**, 721 F.2d 1540, 1548, 220 USPQ 303, 309 (Fed. Cir. 1983), **cert. denied**, 469 U.S. 851 (1984)).

On page 8 of the brief, Appellants argue that claims 1 through 5 are directed specifically to "means to obtain an evanescent spectrum of the hydrocarbon sample from the non-cladded portion." On pages 9 and 10 of the brief, Appellants argue that the references applied by the Examiner teach

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quantitative and not qualitative detection. In particular, on page 10 of the brief, Appellants argue that the last limitation of claim 1 is not met by the references and the claim limitation of claim 2 is not met by the references. Appellants argue that the problem overcome and the teaching provided by the most pertinent art of record is to determine either the presence and absence of petroleum in water or the concentration of protein in a blood sample. In contradiction, Appellants' claimed invention is a sensor which provides a evanescent wave spectrum of a sample.

On page 3 of the answer, the Examiner states that Silvus discloses everything except a metal halide fiber optic with a non-cladded portion. We note that the Examiner has not pointed out the means that are disclosed in Silvus which would meet the Appellants' claim means to obtain an evanescent spectrum of the hydrocarbon sample from the non-cladded portion. On page 7 of the answer, the Examiner appears to respond to the Appellants' argument by stating that the Silvus-Minekane-Fuller combination discloses measuring the evanescent spectrum since the evanescent spectrum is obtained

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by a silver halide fiber without cladding placed directly in a petroleum sample.

As pointed out by the our reviewing court, we must first determine the scope of the claim. "[T]he name of the game is the claim." *In re Hinkiker Co.*, 150 F.3d 1362, 1369, 47 USPQ2d 1523, 1529 (Fed. Cir. 1998). Our reviewing court has stated in *In re Donaldson Co. Inc.*, 16 F.2d 1189, 1193, 29 USPQ2d 1845, 1848 (Fed. Cir. 1994) that the "plain and unambiguous meaning of paragraph six is that one construing means-plus-function language in a claim must look to the specification and interpret that language in light of the corresponding structure material, or acts described therein, and equivalents thereof, to the extent that the specification provides such disclosure."

We note that Appellants' claim 1 recites "means to obtain an evanescent spectrum of the hydrocarbon sample from the non-cladded portion." Turning to Appellants' specification, we find that on page 4, that Appellants disclosed that spectrometer 18 obtains an evanescent spectrum of the hydrocarbon sample from the non-cladded portion. Therefore,

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we find that the scope of Appellants' claim 1 requires a spectrometer to provide an evanescent spectrum of the hydrocarbon sample.

Turning to Silvus, we find that Silvus does not teach a spectrometer and thus, does not meet the limitation as recited in Appellants' claim 1 of a means to obtain an evanescent spectrum of the hydrocarbon sample. In col. 2, lines 40-68, Silvus discloses that the object of the invention is to provide an instrument to determine the amount of suspended oils in water. Thus, Silvus is not concerned with determining what type of petroleum is in a sample. In particular, Silvus teaches an inexpensive, reliable, easily operated and maintained instrument which detects the concentration of oils suspended in water by using a photodiode that translates the amount of light transmitted through the water into an electrical signal. The voltage of the photodiode is proportional to the amount of suspended oils in the water.

Turning to Minekane, we find that Minekane is also concerned with measuring the concentration of a particular component in a sample. In particular, Minekane is interested

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in measuring the concentration of protein in blood extracted from human tissues. See page 2. Minekane teaches that Fig. 1 is a structural diagram of the densitometer of the invention. We note that the structure disclosed utilizes a photomal item 6, which transforms the light into a electrical signal. Therefore, we fail to find that Minekane teaches a spectrometer to obtain an evanescent spectrum of hydrocarbon sample.

Finally, we turn to Fuller. Fuller is directed to a cladded optical fiber. We note that the Examiner relies on Fuller for the teaching of using halide materials for the optical fiber. We

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find that Fuller fails to teach a spectrometer to obtain an evanescent spectrum of hydrocarbon sample.

Upon our review of the references relied on the Examiner, we fail to find that the Examiner has provided us evidence of "means to obtain an evanescent spectrum of the hydrocarbon sample from the non-cladded portion" as recited in Appellants' claim 1.

We are not inclined to dispense with proof by evidence when the proposition at issue is not supported by a teaching in a prior art reference or shown to be common knowledge of unquestionable demonstration. Our reviewing court requires this evidence in order to establish a *prima facie* case. *In re Piasecki*, 745 F.2d 1468, 1471-72, 223 USPQ 785, 787-88 (Fed. Cir. 1984); *In re Knapp-Monarch Co.*, 296 F.2d 230, 232, 132 USPQ 6, 8 (CCPA 1961); *In re Cofer*, 354 F.2d 664, 668, 148 USPQ 268, 271-72 (CCPA 1966). Our reviewing court states in *In re Piasecki*, 745 F.2d 1468, 223 USPQ 785, 788 (Fed. Cir. 1984) the following:

The Supreme Court in *Graham v. John Deere Co.*, 383 U.S. 1 (1966), focused on the procedural and evidentiary processes in reaching a conclusion under

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Section 103. As adapted to ex parte procedure, Graham is interpreted as continuing to place the "burden of proof on the Patent Office which requires it to produce the factual basis for its rejection of an application under section 102 and 103". **Citing *In re Warner***, 379 F.2d 1011, 1020, 154 USPQ 173, 177 (CCPA 1967).

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Appellants argue on page 12 of the brief, that one of ordinary skill in the art faced with the problems solved by Appellants would not look to Silvus or Minekane to solve the problem of determining the specific identity of hydrocarbons in water. Appellants argue that Schnell's claimed invention measures the evanescent spectrum of hydrocarbons to identify the hydrocarbon and this is not suggested by the prior art.

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. 1992)(***citing In re Gordon***, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984)). The Federal Circuit reasons in ***Para-Ordnace Mfg. Inc. v. SGS Importers Int'l Inc.***, 73 F.3d 1085, 1088-89, 37 USPQ2d 1237, 1239-40 (Fed. Cir. 1995), ***cert. denied***, 519 U.S. 822 (1996), that for the determination of obviousness, the court must answer whether one of ordinary skill in the art who sets out to solve the problem and who had before him in his workshop the prior art,

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would have been reasonably expected to use the solution that  
is claimed by the Appellants.

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As we have pointed out above, Silvus and Minekane are directed to the problem of determining the amount of a component in a liquid. In Silvus' disclosure the problem is to determine the amount of suspended oils in water. In Minekane, the problem is directed to determine the amount of protein in a sample. Neither reference is concerned with the problem of identifying the specific hydrocarbons in water by obtaining an evanescent spectrum of the hydrocarbon. Therefore, we fail to find that the Examiner has shown that the prior art suggests the desirability of the modification as proposed by the Examiner.

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In view of the foregoing, we have not sustained the rejection of claims 1 through 5 under 35 U.S.C. § 103. Accordingly, The Examiner's decision is reversed.

**REVERSED**

MICHAEL R. FLEMING	)	
Administrative Patent Judge	)	
	)	
	)	
	)	BOARD OF PATENT
PARSHOTAM S. LALL	)	
Administrative Patent Judge	)	APPEALS AND
	)	
	)	INTERFERENCES
	)	
LANCE LEONARD BARRY	)	
Administrative Patent Judge	)	

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