

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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 JONATHON D. WEISS

---

Appeal No. 1998-2459  
Application No. 08/566,340

---

ON BRIEF

---

Before JERRY SMITH, BARRETT, and LEVY, Administrative Patent Judges.

LEVY, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1-9 and 11-13, which are all of the claims pending in this application.

BACKGROUND

The appellant's invention relates to a fiber optic refractive index monitor. An understanding of the invention can be derived from a reading of exemplary claim 1, which is reproduced as follows:

1. A device for detecting a change  $\Delta n$  in the index of refraction  $n_1$  of a liquid between the values  $n_1$  and  $n_1 - \Delta n$ , comprising:

a short length of optical guide having refractive index  $n_g$ , said guide having a smooth exterior surface along its length covered by the liquid;

means for inputting a light beam into said guide,

the angle of the light beam with respect to said optical guide being selected so that light impinges on the interface between said exterior surface and the liquid at the lowest critical angle  $N_c$  of said guide, where  $N_c = \sin^{-1}(n_1 - \Delta n) / n_g$ ; and

means for detecting the change in light passing through said guide.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

|                                      |           |         |
|--------------------------------------|-----------|---------|
| Broerman<br>1971                     | 3,619,068 | Nov. 9, |
| Park<br>16, 1988                     | 4,764,671 | Aug.    |
| Noguchi et al. (Noguchi)<br>13, 1996 | 5,546,493 | Aug.    |

Claims 1 and 4-7 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Broerman. Claims 5-6 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Broerman and Park. Claims 8, 9, and 11-13 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Broerman and Noguchi.

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellant regarding the above-noted rejections, we make reference to the examiner's answer (Paper No. 10, mailed December 16, 1997) for the examiner's complete reasoning in support of the rejections, and to the appellant's brief (Paper No. 9, filed June 30, 1997) and reply brief (Paper No. 12, filed January 16, 1998) for appellant's arguments thereagainst. Only those arguments actually made by appellants have been considered in this decision. Arguments which appellants could have made but chose not to make in the briefs have not been considered. See 37 CFR § 1.192(a).

OPINION

In reaching our decision in this appeal, 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 appellants' 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 answer.

It is our view, after consideration of the record before us, that the 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 invention as set forth in claims 1-9 and 11-13. Accordingly, we reverse, essentially for the reasons set forth by appellant.

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., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985), cert. denied, 475 U.S. 1017 (1986); ACS Hosp. Sys., Inc. v. Montefiore Hosp., 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). If that burden is met, the burden then shifts to the applicant to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis

of the evidence as a whole. See id.; In re Hedges, 783 F.2d 1038, 1039, 228 USPQ 685, 686 (Fed. Cir. 1986); In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); and In re Rinehart, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976).

We consider first the rejection of claims 1-4 and 7 based on the teachings of Broerman. Appellant asserts (brief, page 2) that the issue is whether Broerman teaches "said guide having a smooth exterior surface along its length covered by the liquid" as recited in claim 1. Appellant asserts (brief, pages 3 and 4) that in Broerman the test liquid covers a smooth end of the optical fiber, whereas the claim requires the test liquid to cover the optical guide along its length. The examiner's position (answer, page 8) is that "the light guide 28 [of Broerman] is cut at an angle which is covered by the liquid. Thus [,] at least some portion of the length of the light guide is covered by the liquid."

We find that in Broerman (col. 1, lines 27-29 and col. 2, lines 41-49) the end of the tube 28, which is inserted into housing 20, is cut at an angle other than 90° with respect to the axis of the tube, as are the ends of the fiber optic tubes

29. The end of the tube 28 is tapered at an angle which approximates the critical angle with respect to the material being measured. The angle of the end of tube 28 that intersects passage 21 is selected such that the amount of light transmitted through tube 28 changes if there is a change in the refractive index of the test liquid in passage 21. From these teachings of Broerman that the end of the tube 28 and the end of the optical fibers 29 are tapered at an angle where the liquid passes, we find that the portion of the light guide that contacts the liquid is not along the length of the fiber optic tube 28, but rather along the end of the fiber optic tube. Moreover, we take note of Webster's New World Dictionary (1972)<sup>1</sup> which defines "length" as "the measure of how long a thing is; measurement of anything from end to end; the greatest of the two or three dimensions of anything." From the teachings of Broerman and the customary definition of the term "length" we agree with appellant (brief, page 4) that in an optical guide or tube, the surface along the length of the guide is the portion between the two

---

<sup>1</sup> A copy of the Dictionary definition of the term "length" is attached to this decision.

ends. We do not agree with the examiner's assertion (answer, page 4) that the same portion of the length of the pipe is covered by liquid. We find that in light of Broerman's specific disclosure that both the end of the tube 28 and the end of the optical fibers 29 are tapered at an angle at the location where the test liquid passes by the end of tube 28, that the liquid does contact the smooth exterior surface along its length, as recited in claim 1. Accordingly, we find that the examiner has not established a prima facie case of obviousness with respect to claim 1. Accordingly, the rejection of claim 1 and dependent claims 2-4 and 7 under 35 U.S.C.

§ 103(a) as being unpatentable over the teachings of Broerman is reversed.

With regard to the rejection of claims 5 and 6 under 35 U.S.C. § 103(a) as being unpatentable over Broerman and Parks, we find that Parks does not overcome the basic deficiency of Broerman. Accordingly, the rejection of claims 5 and 6 under 35 U.S.C. § 103(a) is reversed.

Turning next to the rejection of claims 8, 9, and 11-13 under 35 U.S.C. § 103(a) as unpatentable over Broerman, Park,

and Noguchi, we note that independent claim 8 recites language similar to claim 1, reciting "a short length of optical guide having refractive index  $n_g$ , said guide having a smooth exterior surface along its length covered by the liquid." As Noguchi does not overcome the basic deficiency of Broerman and Park, the rejection of claims 8, 9, and 11-13 under 35 U.S.C. § 103(a) is reversed.

CONCLUSION

To summarize, the decision of the examiner to reject claims 1-9 and 11-13 under 35 U.S.C. § 103 is reversed.

REVERSED

JERRY SMITH )  
Administrative Patent Judge )  
)  
)  
)  
)  
) BOARD OF PATENT  
LEE E. BARRETT ) APPEALS  
Administrative Patent Judge ) AND  
) INTERFERENCES  
)  
)  
)  
STUART S. LEVY )  
Administrative Patent Judge )

Appeal No. 1998-2459  
Application No. 08/566,340

Page 11

PATENT AND LICENSING CENTER  
SANDIA NATIONAL LABORATORIES  
MAIL STOP 0161  
ALBUQUERQUE, NM 87185-0161

APPEAL NO. 1998-2459 - JUDGE LEVY  
APPLICATION NO. 08/566,340

APJ LEVY

APJ BARRETT

APJ JERRY SMITH

DECISION: **REVERSED**

Prepared By:

**DRAFT TYPED:** 29 Apr 02

**FINAL TYPED:**