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scott.anchell@ivwatch.com
gary.warren@ivwatch.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte GARY P. WARREN and MATTHEW S. ALLEY

Appeal 2015-003359
Application 13/792,072
Technology Center 3700

Before DONALD E. ADAMS, JEFFREY N. FREDMAN, and
TIMOTHY G. MAJORS, *Administrative Patent Judges*.

PER CURIAM

DECISION ON APPEAL

This is an appeal¹ under 35 U.S.C. § 134 involving claims to a sensor to aid in diagnosing infiltration or extravasation in Animalia tissue. The Examiner rejected the claims on the grounds of failing to comply with the enablement requirement, indefiniteness, anticipation, and obviousness. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

¹ Appellants identify the Real Party in Interest as ivWatch, LLC (*see* Br. 1).

Statement of the Case

Background

Appellants' invention relates to "a sensor to aid in diagnosing at least one of infiltration and extravasation in Animalia tissue" (Spec. ¶ 12). More particularly, Appellants' "sensor includes a first optical fiber, a second optical fiber, and a housing" (*id.*).

The Claims

Claims 1–18 and 20 are on appeal. Independent claim 1 is representative and reads as follows:

1. A sensor to aid in diagnosing at least one of infiltration and extravasation in Animalia tissue, the sensor comprising:
 - a first optical fiber including a first end face configured to emit a first near-infrared signal into the Animalia tissue;
 - a second optical fiber including a second end face configured to detect a second near-infrared signal from the Animalia tissue, the second near-infrared signal including a first portion of the first near-infrared signal that is at least one of reflected, scattered and redirected by the Animalia tissue;and
 - a housing including:
 - a surface configured to overlie the Animalia tissue, the surface cincturing the first and second end faces; and
 - a near-infrared energy absorber configured to generally absorb a third near-infrared signal from the Animalia tissue, the third near-infrared signal including a second portion of the first near-infrared signal that is at least one of reflected, scattered and redirected by the Animalia tissue;wherein the third near-infrared signal impinges on the surface.

The Issues

- A. The Examiner rejected claims 14 and 15 under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement (Ans. 3–4).
- B. The Examiner rejected claim 9 under 35 U.S.C. § 112, second paragraph, as being indefinite (Ans. 4–5).
- C. The Examiner rejected claims 1–4, 8, 10–12, 14–18, and 20 under 35 U.S.C. § 102(b) as being anticipated by O’Rourke² (Ans. 5–8).
- D. The Examiner rejected claims 5 and 7 under 35 U.S.C. § 103(a) as obvious over O’Rourke and Takamiya³ (Ans. 9).
- E. The Examiner rejected claim 6 under 35 U.S.C. § 103(a) as obvious over O’Rourke, Takamiya, and En Lin⁴ (Ans. 10–11).
- F. The Examiner rejected claim 9 under 35 U.S.C. § 103(a) as obvious over O’Rourke and Nudelman⁵ (Ans. 11).
- G. The Examiner rejected claims 12 and 13 under 35 U.S.C. § 103(a) as obvious over O’Rourke, Takamiya, En Lin, and Derendorf⁶ (Ans. 12–13).

A. *35 U.S.C. § 112, first paragraph*

The Examiner asserts that

[t]he specification does not provide any guidance as to what concentrations of a particular absorber and in what form the absorber should be in order to yield the claimed absorption characteristics of at least 50% or at least 90% of a third signal.

² O’Rourke et al., US 5,978,534, issued Nov. 2, 1999 (“O’Rourke”).

³ Takamiya et al., US 5,591,517, issued Jan. 7, 1997 (“Takamiya”).

⁴ En Lin et al., US 7,315,682 B1, issued Jan. 1, 2008 (“En Lin”).

⁵ Nudelman et al., US 5,109,276, issued Apr. 28, 1992 (“Nudelman”).

⁶ Derendorf et al., US 2003/0009100 A1, published Jan. 9, 2003 (“Derendorf”).

It is unclear what combinations of absorber form and concentration are necessary to achieve the claimed limitations and would appear to require undue experimentation in order to test the numerous possibilities of concentration of each absorber listed in [paragraph] [0040] [of Appellants' Specification] in each of the possible forms listed [in paragraph] [0040] in order to arrive at the claimed limitation and thus the claims are not enabled by the specification.

(Ans. 3.) The Examiner also asserts that “the characteristics of second and third NIR signals reflected and/or scattered from the Animalia tissue would be a function of the Animalia tissue being examined and the light incident on the tissue” which “further increase[] the experimentation burden” (*id.* at 3–4).

We are not persuaded by the Examiner that claims 14 and 15 are not enabled by the Specification.

[T]he question of undue experimentation is a matter of degree. The fact that some experimentation is necessary does not preclude enablement: what is required is that the amount of experimentation “must not be unduly extensive.”

PPG Indus. Inc. v. Guardian Indus. Corp., 75 F.3d 1558, 1564 (Fed. Cir. 1996). The Examiner cites no evidence that the absorption characteristics would have been unpredictable in any way or that anything other than either reading material data sheets or routine experimentation would have been required to obtain the claimed absorption characteristics.

We therefore agree with Appellants that

very little experimentation is required for selecting a particular absorber. First, as discussed in paragraph 0026 of the present application, there is a limited amount of energy that is being absorbed (“radiation intensity and/or radiation duration are such that tissue harm is minimized”). Second, only minimum levels of absorbance (e.g., “at least 50% absorbance”) are claimed such that many forms and

concentrations of absorbers that are capable of complete or nearly complete absorption are also encompassed within the scope of the claims. Identifying an absorber that is suitable for certain wavelengths is the sole remaining characteristic of an absorber. Manufacturers routinely describe absorbers with curves illustrating the absorption capabilities in certain wavelength bands. The selection of a suitable absorber therefore required minimal experimentation following the inventors' discoveries of the problem, the source of the problem, and the claimed solution.

(Br. 12.)

Accordingly, we reverse the enablement rejection.

B. 35 U.S.C. § 112, second paragraph

The Examiner determines that ““the first optical fibers”” and ““the second optical fibers”” lack antecedent basis in claim 9 and Appellants agree (*see* Ans. 5; Br. 11).

We therefore summarily affirm the indefiniteness rejection based upon the Examiner's explanation and reasoning (Ans. 5). *See In re Berger*, 279 F.3d 975, 984 (Fed. Cir. 2002) (in which the Board affirmed an uncontested rejection of claims under 35 U.S.C. § 112, second paragraph, and on appeal the Federal Circuit affirmed the Board's decision and found that the appellant had waived his right to contest the indefiniteness rejection by not presenting arguments as to error in the rejection on appeal to the Board).

C. 35 U.S.C. § 102(b) over O'Rourke

The Examiner finds that

O'Rourke discloses a fiber optic probe assembly comprising a housing which includes a surface surrounding the end faces

of both transmitting and receiving optical fibers. O'Rourke also discloses a near-infrared energy absorber, such as carbon black, is included in the housing (O'Rourke, see at least Figs. 2, 3, 9, col. 8, lines 12–14, col. 11, lines 2–4).

(Ans. 5–6.) The Examiner determines that

[s]ince O'Rourke teaches all the structural limitations as claimed by applicant it would follow that it would be capable of performing the recited functions. For example, the structure of O'Rourke would be capable of emitting a first near-infrared (NIR) signal from the transmitting optical fiber into Animalia tissue as well as receiv[ing] NIR signals in the receiving optical fiber and the NIR energy absorber if one would choose to position the probe near the Animalia sample (such that it overlies the Animalia tissue) and optically couple the transmitting fiber to a NIR source (as discussed in O'Rourke col. 1[,] lines 54–58, col. 2, lines 30–31 and lines 45–48, and col. 5, lines 15–24).

(*Id.* at 6–7.)

The issue with respect to this rejection is: Does the evidence of record support the Examiner's conclusion that O'Rourke anticipates claim 1?

Findings of Fact

1. Figure 3B of O'Rourke is reproduced below:

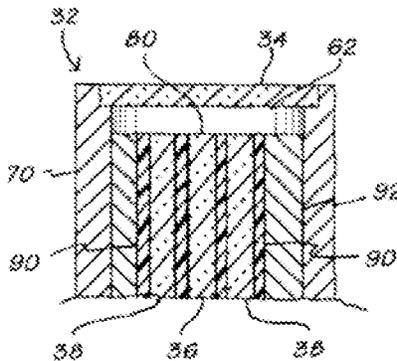


Fig. 3B

Figure 3B shows a “[p]robe tip **32**” that “includes a housing **70**,” “at least one transmitting fiber **36** and at least one receiving fiber **38** (preferably, a plurality of receiving fibers **38** in a closely packed arrangement about the transmitting fiber)” with “an endface **80**” (O’Rourke 7:49–56; *see also* Ans. 5–7).

2. O’Rourke teaches that “[t]o further reduce crosstalk between transmitting and receiving fibers **36**, **38**, fixative **90** is preferably spiked with a light absorber such as carbon black” (O’Rourke 8:12–14; *see also* Ans. 5–6).

3. O’Rourke teaches

In use, the probe is placed near a sample with the transmitting fiber in optical communication with a light source and the receiving fiber in optical communication with a spectrophotometer. Light is directed to the sample by the transmitting fiber, where at least a portion of the light interacts with the sample to produce Raman-scattered light. Some of the scattered light is collected by the receiving fiber or fibers, and transmitted to a detector where the Raman spectrum of the sample is recorded and analyzed.

(O’Rourke 5:15–23; *see also* Ans. 6–7.)

4. O’Rourke teaches “Raman spectra are typically in the visible or near-infrared (NIR) region, therefore, Raman spectra are less severely attenuated than infrared (IR) absorption spectra by transmission over optical fibers” (O’Rourke 2:30–33).

5. Appellants’ Specification teaches that “[e]xamples of absorbers . . . that are suitable for absorbing near-infrared electromagnetic radiation preferably include . . . carbon black” (Spec. ¶ 40).

Principles of Law

A prior art reference can only anticipate a claim if it discloses all the claimed limitations “arranged or combined in the same way as in the claim.” *Wm. Wrigley Jr. Co. v. Cadbury Adams USA LLC*, 683 F.3d 1356, 1361 (Fed. Cir. 2012) (quoting *Net MoneyIn, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1370 (Fed. Cir. 2008)).

Claim terms are interpreted using the broadest reasonable interpretation in light of the Specification. *See, e.g., In re Hyatt*, 211 F.3d 1367, 1372 (Fed. Cir. 2000) (“[D]uring examination proceedings, claims are given their broadest reasonable interpretation consistent with the specification.”).

Analysis

We adopt the Examiner’s findings of fact and reasoning regarding the scope and content of the prior art (Ans. 5–20; FF 1– 5) and agree that claim 1 is anticipated by O’Rourke. We address Appellants’ arguments below.

We begin with claim interpretation, since before a claim is properly interpreted, its scope cannot be compared to the prior art. The limitations in dispute are the requirements for “a first optical fiber including a first end face configured to emit a first near-infrared signal into the Animalia tissue,” “a second optical fiber including a second end face configured to detect a second near-infrared signal from the Animalia tissue,” and “a surface configured to overlie the Animalia tissue,” “a near-infrared energy absorber configured to generally absorb a third near-infrared signal from the Animalia tissue,” as required by claim 1.

The Examiner determines that “[s]ince O’Rourke teaches all the structural limitations as claimed by applicant it would follow that it would be capable of performing the recited functions” (Ans. 6).

Appellants contend that

The Federal Circuit addressed the meaning of “configured to” in *Aspex*⁷ (see pages 25–26 of the decision) as carrying a narrower meaning (e.g., only devices *designed* or *made* to perform a function) rather than carrying a broader meaning (e.g., any device *capable of* performing a function). The court’s treatment of the phrase “configured to” teaches that it is improper to reject claims over prior art that is not designed to perform a recited function, but may be capable of doing so.

(Br. 8–9.)

We find that the Examiner has the better position. “[T]he patentability of apparatus or composition claims depends on the claimed structure, not on the use or purpose of that structure.” *Catalina Mktg. Int’l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 809 (Fed. Cir. 2002).

Moreover,

during patent prosecution when claims can be amended, ambiguities should be recognized, scope and breadth of language explored, and clarification imposed. . . . An essential purpose of patent examination is to fashion claims that are precise, clear, correct, and unambiguous. Only in this way can uncertainties of claim scope be removed, as much as possible, during the administrative process.

In re Zletz, 893 F.2d 319, 321 (Fed. Cir. 1989).

⁷ *Aspex Eyewear, Inc. v. Marchon Eyewear, Inc.*, 672 F.3d 1335 (Fed. Cir. 2012).

Unlike *Aspex Eyewear*, where the issued patent was presumed valid; where claim differentiation between “capable of” language in claim 22 and “adapted to” language in claim 23 was present; and where the Specification supported a narrower interpretation (*Aspex Eyewear, Inc.*, 672 F.3d at 1349), the instant claim 1 lacks any of these facts or evidence.

In particular, because the Examiner applies the broadest reasonable interpretation consistent with the Specification, we look to the Specification to determine whether the “configured to” language imposes any particular structural limitations. The term “configured to” is not defined by the Specification nor is any particular configuration required by the Specification other than that the device function. The Specification states the “description and drawings are illustrative and are not to be construed as limiting” (Spec. ¶ 22) and that the “use of examples anywhere in this specification including examples of any terms discussed herein is illustrative only, and is not intended to further limit the scope and meaning of the disclosure or of any exemplified term” (Spec. ¶ 25).

Appellants do not identify, and we do not find, any specific structural distinctions between the optical fibers of O’Rourke and the device recited in claim 1. Appellants’ “configured to” language solely addresses the intended use of the sensor, and unlike *Aspex Eyewear*, does not impose any structural limitations on the sensor recited in claim 1. “It is well settled that the recitation of a new intended use for an old product does not make a claim to that old product patentable.” *In re Schreiber*, 128 F.3d 1473, 1477 (Fed. Cir. 1997). We thus conclude that the broadest reasonable interpretation of the term “configured to” in relation to the recited structures and functions in claim 1 are structures that are capable of performing the recited functions.

Appellants contend that

[t]he proper manner for interpreting the functional language following “configured to” is not to ignore the language but to evaluate and consider the language, just like any other feature of the claims, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used.

(Br. 14.) Appellants argue that “the fOA improperly ignored claim language and therefore improperly interpreted the claims” (*id.* at 11).

This argument is unpersuasive. As the Examiner explains, “the language was not ignored and, in fact, the limitations following the phrase ‘configured to’ were given patentable weight” (Ans. 14; *see also* Ans. 6 (“[s]ince O’Rourke teaches all the structural limitations as claimed by applicant it would follow that it would be capable of performing the recited functions”)).

Appellants refer the “configured to” claimed limitations and contend that “the only function that O’Rourke explicitly describes is reducing crosstalk between fibers with a light absorber” (Br. 15–16). Appellants argue that

O’Rourke is completely silent with regard to an absorber of a reflected, scattered or redirected near-infrared signal that impinges on a surface cincturing end faces of optical fibers to emit and detect near-infrared signals. . . . It does not follow that O’Rourke has an absorber of a reflected, scattered or redirected near-infrared signal that impinges on a surface cincturing end faces of optical fibers to emit and detect near-infrared signals merely because (i) O’Rourke’s housing includes a surface; and (ii) the housing includes a near-infrared energy absorber.

(*Id.* at 16.)

These arguments are unpersuasive.

O'Rourke teaches a structure of two optical fibers and a housing with "[p]robe tip **32**" that "includes a housing **70**," "at least one transmitting fiber **36** and at least one receiving fiber **38** (preferably, a plurality of receiving fibers **38** in a closely packed arrangement about the transmitting fiber)" with "an endface **80**" (FF 1). O'Rourke teaches that, like claim 1, the fibers may emit and detect near-infrared signals using Raman spectroscopy (FF 3–4).

O'Rourke further teaches that "[t]o further reduce crosstalk between transmitting and receiving fibers **36**, **38**, fixative **90** is preferably spiked with a light absorber such as carbon black" (FF 2). Appellants' Specification similarly teaches that "[e]xamples of absorbers . . . that are suitable for absorbing near-infrared electromagnetic radiation preferably include . . . carbon black" (FF 5).

Therefore, O'Rourke teaches a sensor that is structurally identical to the sensor recited in claim 1, with the only difference being the intended use recited in claim 1. Moreover, as even Appellants acknowledge, "[a]lthough Animalia tissue is an example of an environment in which the claimed sensor is intended to be used, no significance is attached to the terminology 'Animalia tissue' *per se* for distinguishing the claimed sensor on the basis of the environment in which it is intended to be used" (Br. 5). We therefore agree with the Examiner that "[r]egardless of interpreting 'configured to' as 'capable of[,] or more narrowly as 'designed or made to perform' the claimed function as Appellant[s] assert[] is appropriate, O'Rourke meets the claims" (Ans. 17).

D–G. 35 U.S.C. § 103(a) over O'Rourke and Takamiya, O'Rourke, Takamiya, and En Lin, O'Rourke and Nudelman, and O'Rourke, Takamiya, En Lin, and Derendorf

Appellants contend that Takamiya, En Lin, Nudelman, and Derendorf are “completely silent regarding a near-infrared energy absorber of a reflected, scattered or redirected near-infrared signal that impinges on a housing surface cincturing end faces of optical fibers to emit and detect near-infrared signals” (*see* Br. 19–22). Appellants’ contention fails to account for O’Rourke’s contribution to the combination of these teachings. “Non-obviousness cannot be established by attacking references individually where the rejection is based upon the teachings of a combination of references []. [The reference] must be read, not in isolation, but for what it fairly teaches in combination with the prior art as a whole.” *In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986). We therefore affirm these rejections for the same reasons given for affirming the anticipation rejection over O’Rourke.

SUMMARY

In summary, we reverse the rejection of claims 14 and 15 under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement.

We affirm the rejection of claim 9 under 35 U.S.C. § 112, second paragraph, as being indefinite.

We affirm the rejection of claim 1 under 35 U.S.C. § 102(b) as being anticipated by O’Rourke. Claims 2–4, 8, 10–12, 14–18, and 20 fall with claim 1.

We affirm the rejection of claims 5 and 7 under 35 U.S.C. § 103(a) as obvious over O’Rourke and Takamiya.

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We affirm the rejection of claim 6 under 35 U.S.C. § 103(a) as obvious over O'Rourke, Takamiya, and En Lin.

We affirm the rejection of claim 9 under 35 U.S.C. § 103(a) as obvious over O'Rourke and Nudelman.

We affirm the rejection of claims 12 and 13 under 35 U.S.C. § 103(a) as obvious over O'Rourke, Takamiya, En Lin, and Derendorf.

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

AFFIRMED