Trials@uspto.gov
571-272-7822

Paper 15
Date: July 3, 2013

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BAE SYSTEMS INFORMATION AND ELECTRONIC SYSTEMS INTEGRATION, INC.
Petitioner

v.

CHEETAH OMNI, LLC
Patent Owner

Case IPR2013-00175
Patent 7,633,673

Before STEPHEN C. SIU, JUSTIN T. ARBES, and RAMA G. ELLURU, *Administrative Patent Judges.*

ELLURU, *Administrative Patent Judge.*

DECISION
Institution of *Inter Partes* Review
37 C.F.R. § 42.108

I. BACKGROUND

Petitioner BAE Systems Information and Electronic Systems Integration, Inc. ("BAE Systems") filed a petition on March 4, 2013, requesting *inter partes* review of claims 1, 4, 13-15, 17, and 19 of U.S. Patent 7,633,673 ("the '673 patent"). ("Pet" Paper No. 1.) The Patent Owner, Cheetah Omni, LLC ("Cheetah"), filed a preliminary response opposing institution of review. ("Prelim Resp." Paper No. 12). We have jurisdiction under 35 U.S.C. §§ 6(b)(4) and 314. The standard for instituting an *inter partes* review is set forth in 35 U.S.C. § 314(a) which provides as follows:

> THRESHOLD -- The Director may not authorize an inter partes review to be instituted unless the Director determines that the information presented in the petition filed under section 311 and any response filed under section 313 shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.

We determine based on the record that there is a reasonable likelihood that BAE Systems would prevail in showing unpatentability of all the challenged claims. Accordingly, we authorize an *inter partes* review to be instituted for the '673 patent.

The '673 patent is currently the subject of co-pending litigation styled, *Cheetah Omni, LLC v. United States*, Case No. 1:11-cv-00255-FMA (Fed. Cl.) ("the Federal Claims litigation"), discussed further below. (Pet. 4.)

A. Statutory Threshold Issues

1. One-year Statutory Bar

Cheetah alleges that BAE Systems' petition is barred under 35 U.S.C. § 315(b), which mandates that an *inter partes* review may not be instituted if the

petition is filed more than 1 year after the date on which the "petitioner, real party in interest, or privy of the petitioner" is served with a complaint alleging infringement of the patent. (Prelim Resp. 7-13.) We determine that BAE Systems' petition is not barred under § 315(b).

Cheetah notes the following dates in support of its argument. On November 12, 2010, Cheetah filed a patent infringement complaint in the U.S. District Court for the Eastern District of Texas asserting a claim for infringement of the '673 patent against BAE Systems ("the Texas action"). (Ex. 1007.) Cheetah voluntarily dismissed the Texas action on February 10, 2011. (Ex. 1008.) Cheetah subsequently filed a complaint in the U.S. Court of Federal Claims against the United States on April 22, 2011, asserting infringement of the '673 patent and identifying BAE Systems' Boldstroke™ system as an infringing product. (Ex. 1003, ¶¶ 15-17.) On March 19, 2012, BAE Systems was served with a notice by the Federal Claims court requesting BAE Systems to appear and assert any claims or interest it may have in the subject matter of the Federal Claims litigation. (Exs. 1004, 1005.) BAE Systems filed the present petition on March 4, 2013. (Paper 1.)

Cheetah first alleges that BAE Systems' petition was filed over two years after BAE Systems was served with a complaint in the Texas action. (Prelim. Resp. 3; Ex. 1007.) However, Cheetah voluntarily dismissed that action pursuant to Fed. R. Civ. P. 41(a) before any of the named defendants were required to answer. (Pet. 6; Ex. 1008 (Stipulation of Dismissal).) As BAE Systems correctly states, a voluntary dismissal of an infringement action nullifies the effect of the alleged service of the complaint on the petitioner. *See, e.g.*, *Graves v. Principi*, 294 F.3d 1350, 1356 (Fed. Cir. 2002) ("The dismissal of an action without prejudice leaves the parties as though the action had never been brought"); *see also* IPR2012-00004 (*Macauto U.S.A. v. BOS GMBH & KG* at 15-16 (Paper 18, Ex.

1009)). Thus, the dismissal of the earlier Texas action against BAE Systems nullifies the effect of the alleged service of the complaint and did not trigger the § 315(b) one-year statutory bar.

Cheetah next alleges that BAE Systems' petition is barred under § 315(b) because the United States is a privy of BAE Systems with regard to this matter and the United States was served with the Federal Claims complaint on April 22, 2011, more than 22 months before BAE Systems filed the instant petition. (Prelim. Resp. 8-9.) The Federal Claims complaint alleges that the United States infringed the '673 patent by using and soliciting the manufacture of infringing products, including BAE Systems' product, the Boldstroke™ system. (Ex. 1003, ¶¶ 15-17.) Cheetah contends that the United States was a privy of BAE Systems pursuant to a government contract wherein the United States was a customer of BAE Systems. (Prelim. Resp. 10-13.) For instance, Cheetah contends that BAE Systems admits to being in privity with the United States as early as February 10, 2011, when the Texas action was dismissed. In support, Cheetah refers to BAE Systems' statement in the petition that the allegations of infringement in the Texas action related to actions "performed solely in connection with contracts with the United States government, and therefore the Patent Owner's sole remedy was an action against the United States in the Court of Federal Claims." (Prelim. Resp. 10; Pet 6.) Cheetah also contends that BAE Systems and the United States were privies on or before May 6, 2011, when BAE Systems' attorney sent Cheetah a letter in response to Cheetah's suit against the United States. (Prelim. Resp. 10-11, Ex. 1103.) In that letter, BAE Systems stated that the United States is BAE Systems' customer, Boldstroke™ does not infringe the '673 patent, and BAE Systems intends to seek redress against Cheetah. (Ex. 1103.) In addition, Cheetah contends that BAE Systems and the United States had established privity of

contract on or before January 31, 2012, when the Army awarded a contract to BAE Systems pursuant to a United States solicitation, identified in the Complaint, for the manufacture of allegedly infringing products. (Prelim. Resp. 11.) We are not persuaded that the Unites States and BAE Systems were privies when Cheetah served the complaint in the Federal Claims litigation or thereafter.

Cheetah's only argument is that BAE Systems and the United States were in "privity of contract" based on the fact that the United States was a customer of BAE Systems. (Prelim. Resp. 10-13.) Apart from a legal dictionary definition of "privity," however, Cheetah does not provide any legal authority for this argument. (*See id*. at 10.) Moreover, the parties' property interests in BAE Systems' allegedly infringing products, such as the Boldstrike™ identified in the Federal Claims complaint, are irrelevant here because any such property interests are not at issue in this proceeding. *See Shamrock Techs., Inc. v. Medical Sterilization, Inc.*, 903 F.2d 789, 793 (Fed. Cir. 1990) ("What constitutes 'privity' varies, depending on the purpose for which privity is asserted."). Patentability, not infringement, is the issue before the Board in an *inter partes* review. *See* 35 U.S.C. § 311(b). Thus, any privity stemming from interests in BAE Systems' allegedly infringing products does not apply to this patentability proceeding. *See Int'l Nutrition Co. v. Horphag Research, Ltd.*, 220 F.3d 1325, 1329 (Fed. Cir. 2000) ("[W]hen one party is a successor in interest to another with respect to a particular property, the parties are in privity only with respect to an adjudication of rights in the property that was transferred; they are not in privity for other purposes, such as an adjudication of rights in other property that was never transferred between the two. Put another way, the transfer of a particular piece of property does not have the effect of limiting rights of the transferee that are unrelated to the transferred property"). Thus, we are not persuaded on the record before us that the seller-customer

relationship between BAE Systems and the United States, pursuant to a government contract, indicates that they were in privity as Cheetah suggests.

Moreover, we determine that the United States is not a privy of BAE Systems with respect to this proceeding. Whether a non-party is a "privy" for purposes of an *inter partes* review proceeding is a "highly fact-dependent question" that takes into account how courts generally have used the terms to "describe relationships and considerations sufficient to justify applying conventional principles of estoppel and preclusion." Office Patent Trial Practice Guide, 77 Fed. Reg. 48756, 48759 (Aug. 14, 2012) ("Trial Practice Guide"). Depending on the circumstances, a number of factors may be relevant to the analysis, including whether the non-party "exercised or could have exercised control over a party's participation in a proceeding" or whether the non-party is responsible for funding and directing the proceeding. *Id*. at 48759-60. Cheetah neither alleges nor presents sufficient and credible evidence that the United States exercises control over BAE Systems' participation in this matter or that the United States is responsible for funding and directing the proceeding. Because we determine that the United States was not a privy of BAE Systems on the date the United States was served with a complaint in the Federal Claims litigation or thereafter, the § 315(b) statutory bar was not triggered by the service of the Federal Claims complaint on the United States. We also note that on March 19, 2012, BAE Systems was served with a Rule 14 Notice in the Federal Claims litigation notifying BAE Systems to appear and assert any claim or interest it may have in the subject matter of the litigation, and BAE Systems filed the instant petition less than one year later on March 4, 2013. (Exs. 1004, 1005.) Thus, even assuming that the Rule 14 Notice triggered the § 315(b) statutory bar (which we need not decide for purposes of this proceeding), BAE Systems' petition was timely filed.

2. Prior Consideration of Asserted Sanders Patent

Cheetah maintains that the Board should decline to institute an *inter partes* review of the instant petition pursuant to 35 U.S.C. § 325(d) because the Examiner considered the asserted prior art during prosecution of the '673 patent. We are not persuaded by Cheetah's argument.

Cheetah alleges that the Examiner considered a patent that is related to the asserted Sanders patent and further that the Examiner was familiar with the entire Sanders patent family, which Cheetah asserts consists of patents that are substantially identical except in the claims. (Prelim Resp. 13-16.) Section 325(d) provides the Director the authority not to institute *inter partes* review on the basis that the same or substantially the same prior art or arguments were presented previously to the Office, but does not mandate that result. 35 U.S.C. § 325(d). Specifically, the statutory provision does not require the Director, in deciding whether to institute *inter partes* review, to defer to a prior determination in the Office, even one which considered similar prior art and arguments. As explained below, we conclude that BAE Systems' arguments with respect to the asserted prior art have merit and, therefore, do not exercise our authority to decline an *inter partes* review of the '673 patent under § 325(d).

B. The '673 Patent

The invention of the '673 patent is directed to systems and methods for generating infrared light with wavelength in the mid-infrared (IR) range. (Ex. 1001, Title, Abstract.) Some of the embodiments described by the '673 patent use a Raman wavelength shifter that is coupled to a pump laser to produce a longer wavelength. (Ex. 1001, 14:65-67.) A "Raman wavelength shifter" refers to any device that uses the Raman effect to shift a shorter optical signal wavelength to a

longer optical signal wavelength. (Ex. 1001, 15:1-3.) "Raman effect" is caused by inelastic scattering of a photon during an interaction with an atom or molecule, causing the photon to gain or lose energy with a corresponding decrease or increase in wavelength, respectively. (Pet. 13 (citing Ex. 1013).) A Raman wavelength shifter may, for example, comprise a chalcogenide glass fiber that is capable of shifting the shorter pump laser wavelength to a longer wavelength, such as a wavelength in the mid-IR region. (Ex. 1001, 15:6-10.)

C. Challenged Claims

Claims 1 and 13 are independent claims. The remaining challenged claims depend from either claim 1 or claim 13. Claim 1 is representative of the challenged claims and is reproduced below:

> 1. A mid-infrared light source, comprising:
>
> a multiplexer operable to combine a first laser signal and a second laser signal to generate a first optical signal, the first optical signal comprising one or more wavelengths;
>
> a gain fiber coupled to the multiplexer and operable to receive at least the first optical signal, the gain fiber comprising a first waveguide structure;
>
> a second waveguide structure coupled to the gain fiber and operable to wavelength shift at least one wavelength of the first optical signal to a longer wavelength optical signal, the longer wavelength optical signal comprising a wavelength in the range of 1.7 microns or more, the second waveguide structure comprising a wavelength shifting fiber coupled to a nonlinear element, wherein the wavelength shifting fiber operates to wavelength shift the at least one wavelength of the first optical signal to a second optical wavelength and the nonlinear element operates to wavelength shift the second optical wavelength to the longer wavelength optical signal, and wherein the wavelength shifting fiber is substantially different than the nonlinear element.

D. Prior Art Relied Upon

BAE Systems relies upon the following prior art reference:

Patent No.	Filing Date	Issue Date	Exhibit No.
6,229, 828 ("Sanders")	July 27, 1998	May 8, 2001	1010

(Pet. 8.) BAE Systems also relies on a declaration submitted by Dr. David A. Smith ("Smith Decl."). (Ex. 1011).

E. The Asserted Grounds

BAE Systems challenges the patentability of claims 1, 4, 13-15, 17, and 19 of the '763 patent based on the following grounds.

1. Claims 1, 4, 13-15, 17, and 19 are anticipated under 35 U.S.C. § 102(b) by Sanders; and
2. Claim 14 is rendered obvious under 35 U.S.C. § 103(a) over Sanders.

(Pet. 9.)

II. ANALYSIS

A. Claim Construction

Consistent with the statute and the legislative history of the AIA, the Board interprets claims by applying the broadest reasonable construction in the context of the specification in which the claims reside. 37 C.F.R. § 42.100(b); *see Office Patent Trial Practice Guide*, 77 *Fed. Reg*. 48756, 48766 (Aug. 14, 2012). The words of the claim will be given their plain meaning unless the plain meaning is inconsistent with the specification. *In re Zletz*, 893 F.2d 319, 321 (Fed. Cir. 1989). "There are only two exceptions to the general rule that a claim term is given its ordinary meaning: 1) when a patentee sets out a definition and acts as his own

lexicographer, or 2) when the patentee disavows the full scope of a claim term either in the specification or during prosecution." *See Thorner v. Sony Computer Entm't Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012).

In assessing the merit of BAE Systems' arguments, we have construed the following claim terms in light of the specification of the '673 patent.

1. "Gain fiber"

Independent claims 1 and 13 require "a gain fiber coupled to the multiplexer and operable to receive at least the first optical signal." BAE Systems' declarant states that "gain fiber" would have been understood by a person of ordinary skill in the art to mean "an optical fiber that operates to amplify an input signal." (Ex. 1011 (Smith Decl.), ¶ 22.) Consistent with this ordinary meaning, the '673 patent specification refers to "[g]ain fiber 804" as a "gain medium." (Ex. 1001, 17:18-20, 17:42.) Accordingly, we adopt BAE Systems' proposed construction for "gain fiber" as "an optical fiber that functions as a gain medium (*i.e.*, amplifies an input signal)."

2. "Wavelength shift" phrases

Independent claim 1 requires "a second wave guide structure . . . operable to *wavelength shift* at least one wavelength of the first optical signal to a longer wavelength optical signal" (emphasis added). Claim 1 further requires that the claimed "wavelength shifting fiber operates to *wavelength shift* the at least one wavelength of the first optical signal to a second optical wavelength," and that the "nonlinear element operates to *wavelength shift* the second optical wavelength to the longer wavelength optical signal." (emphasis added). Independent claim 13 recites similar claim features.

The '673 patent specification does not expressly set forth a definition for "wavelength shift," but includes embodiments describing the "Raman wavelength

shifter" using the "Raman effect" to shift a shorter optical signal wavelength to a longer optical signal wavelength. (Ex. 1001, 15:1-3.) However, the challenged claims do not recite the use of a "Raman wavelength shifter" or the "Raman effect" to shift a wavelength to a longer wavelength. Thus, we do not interpret the claims as limited to the use of a Raman wavelength shifter or Raman effect to so shift a wavelength. Accordingly, applying the broadest reasonable interpretation, we adopt BAE Systems' proposed construction for "wavelength shift" as "receiving at least one input wavelength and emitting at least one output wavelength that is different from the input wavelength." (Pet. 13-14; Ex. 1011 (Smith Decl.), ¶¶ 24-25.)

B. Anticipation by Sanders (Ex. 1010)

BAE Systems contends that claims 1, 4, 13-15, 17, and 19 are anticipated by Sanders. Based on our review of the record before us, we determine that there is a reasonable likelihood that claims 1, 4, 13, 15, 17, and 19 are anticipated by Sanders. (Pet. 15-27, 28-30, 32-44 (claim charts).) We further determine, however, that there is not a reasonable likelihood that claim 14 is anticipated by Sanders.

Claims 1 and 13

Sanders describes a "mid-IR wavelength source," such as an embodiment comprising light sources that output light having a mid-IR wavelength in the range of 2.0 μm to 5.0 μm. (Ex. 1010, 3:43-55.) In particular, Sanders describes a mid-IR wavelength source 110 illustrated in Fig. 19 that incorporates high power pump source 61, illustrated in Fig. 11. (Ex. 1010, 16:53-55, 20:61-63; Figs. 11, 19.) The relevant portion from figure 11 and complete figure 19 are reproduced below.

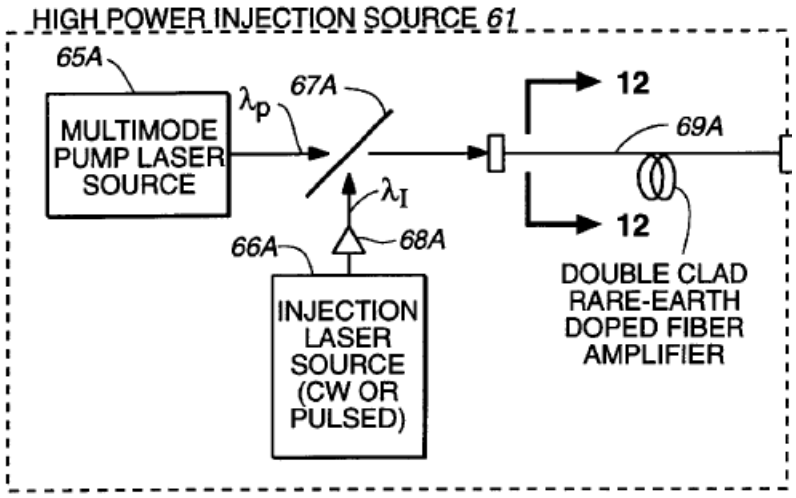

Figure 11

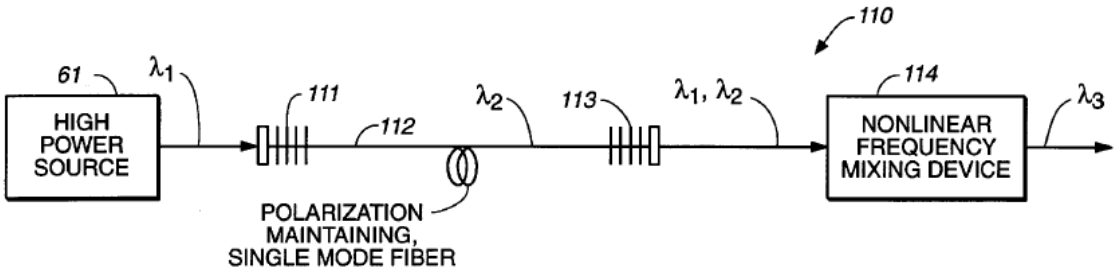

Figure 19

BAE Systems has made a threshold showing with respect to the "*multiplexer* operable to combine a first laser signal and a second laser signal to generate a first optical signal, the first optical signal comprising one or more wavelengths" recited in claim 1. Specifically, high power source 61 includes a *beam combiner* 67A that combines a first laser signal (pump wavelength λ_p) with a second laser signal (injection wavelength λ_I). (Ex. 1010, 16:66-17:3.) BAE Systems also has made a threshold showing that Sanders describes the claimed "a *gain fiber* coupled to the multiplexer and operable to receive at least the first optical signal," that comprises

a first waveguide structure. As discussed above, "gain fiber" means "an optical fiber that functions as a gain medium (*i.e.*, amplifies an input signal)." Figure 11 illustrates *double clad rare-earth doped fiber amplifier* 69A coupled to the beam combiner 67A. (Ex. 1010, Fig. 11.) Fiber amplifier 69A receives the optical signal from the beam combiner 67A, amplifies the signal, and further guides the received signal into the inner cladding 69C and the core 69B of the first amplifier 69A. (Ex. 1010, Fig. 11, 16:22-28, 17:12-19.)

In addition, BAE Systems has made a threshold showing regarding "a *second waveguide structure* coupled to the gain fiber and operable to wavelength shift at least one wavelength of the first optical signal to a longer wavelength optical signal." As discussed above, "wavelength shift" means "receiving at least one input wavelength and emitting at least one output wavelength that is different from the input wavelength." BAE Systems identifies a "second waveguide structure" in Sanders as the *combination of the fiber oscillator 112 and the nonlinear frequency (NFM) device 114*, which is coupled to the double clad-rare earth doped fiber amplifier 69A. (Pet. 18; Ex. 1010, Fig. 19.) This structure receives the output signal from the fiber amplifier 69A having a first wavelength λ_1 and outputs a longer wavelength λ_3. (Ex. 1010, 20:62-21:18.) Sanders discloses that the resulting longer wavelength can be in the range of 2.0 μm to 4.0 μm (Ex. 1010, 18:46-53, 20:62-21:18), which satisfies the requirement that the "longer wavelength optical signal compris[es] a wavelength in the range of 1.7 microns or more."

Further, BAE Systems has shown a "second waveguide structure" comprising the required "*wavelength shifting fiber* coupled to a *nonlinear element*" in Sanders. As indicated above, the second waveguide structure of Sanders comprises a *fiber oscillator 112* coupled to *nonlinear frequency mixing* device 114.

BAE Systems also identifies the required feature that the "wavelength shifting fiber operates to wavelength shift the at least one wavelength of the first optical signal to a second optical wavelength." Sanders' fiber oscillator 112 wavelength shifts the first optical signal with wavelength λ_1 (about 1.03 μm to 1.09 μm) to light with a second wavelength λ_2 (about 1.44 μm). (Ex. 1010, 21:13-17; Fig. 19.) BAE Systems further identifies the required feature that the "the nonlinear element operates to wavelength shift the second optical wavelength to the longer wavelength optical signal." Sanders states that the NFM device 114 may be a quasi-phase matching optical parametric oscillation (QPM OPO) device. (Ex. 1010, 21:1-3.) With the use of a QPM OPO device, the NFM device 114 is capable of wavelength shifting light with wavelength λ_2 (about 1.44 μm) to light with a longer wavelength, λ_3 (about 2.0 μm to 4.0 μm). (Ex. 1010, 18:49-53, 21:9-17.) Lastly, BAE Systems has made a threshold showing regarding the claimed "wavelength shifting fiber is substantially different than the nonlinear element." For example, fiber oscillator 112 includes an optical fiber that uses the Raman effect to wavelength shift light, while the NFM device 114 includes a nonlinear optical crystal that generates a wavelength by mixing wavelengths. (Ex. 1010, 8:8-21, 20:61-67.)

Claim 13 recites similar claim features as claim 1. (Pet. 22-27.) We determine that BAE Systems has made a threshold showing regarding the claim limitations of claim 13 for similar reasons as those provided above for claim 1.

Cheetah argues that Sanders does not anticipate independent claims 1 and 13 because Sanders teaches away from the claims. (Prelim. Resp. 18.) However, "whether a reference 'teaches away' from [an] invention is inapplicable to an anticipation analysis." *Celeritas Techs., Ltd. v. Rockwell Int'l Corp.*, 150 F.3d 1354, 1361 (Fed. Cir. 1998) (citation omitted). For clarity, we discuss Cheetah's

"teaching away" argument in relation to the obviousness ground for claim 14 below. Cheetah also argues that "hindsight" prevents a finding of anticipation. (Prelim. Resp. 19-20.) Cheetah contends that Sanders discloses a "great variety" of optical components and that the '673 patent provides the hindsight for assembling the claimed invention. We are not persuaded by this argument. While Sanders does teach many optical components, BAE Systems has shown to a sufficient degree that the mid-IR wavelength source 110 embodiment illustrated in Figure 19, which incorporates the high power source 61 component illustrated in Figure 11, discloses all the limitations of claims 1 and 13 for the reasons explained above.

Claims 4 and 17

Claim 4, which depends from claim 1, requires that the "nonlinear element comprises an oscillator comprising one or more reflectors surrounding a material with a nonlinear optical effect." Claim 17, which depends from claim 13, requires similar claim features. Sanders discloses that NFM device 114, which teaches the claimed nonlinear element, may be a QPM OPO nonlinear device (Ex. 1010, Abstract, 21:1-3, 22:37) and further illustrates that a QPM OMO device includes reflective mirrors 73 and 75 surrounding nonlinear crystal 72. (Ex. 1010, Fig. 15, 18:59-67.)

Claim 14

Claim 14, which depends from claim 13, requires that the "first laser signal operates at approximately 980 nm and the gain fiber comprises at least in part a cladding pumped fiber." Sanders discloses that pump source 65A at wavelength λ_p, which BAE Systems equates with the "first laser signal," is coupled into the inner cladding 69C of fiber amplifier 69A, while injection source 66A at

wavelength λ_I is coupled into core 69B. (Ex. 1010, 17:12-19; Figs. 11 and 12.). Figure 12 is reproduced below:

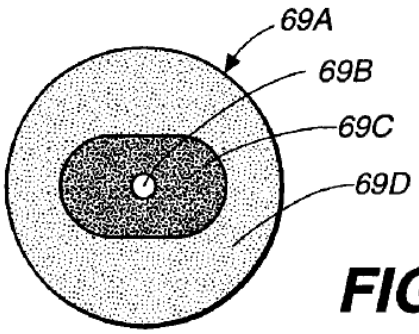

FIG._12

BAE Systems refers to disclosures in Sanders relating to Er^{3+} doped fibers and the wavelengths with which such doped fibers can interact, *i.e.*, 980 nm, to show that pump wavelength λ_p may be 980 nm as required by claim 14. (Pet. 28.) However, Sanders does not expressly disclose that inner cladding 69C, through which wavelength λ_p couples, is doped with Er^3. Rather, Sanders discloses that core 69B, through which λ_I couples, may be doped with rare earth ions. (Ex. 1010, 16:13-16.) Thus, disclosures relating to wavelengths with which Er^{3+} doped fibers can interact do not disclose the wavelength of λ_p. Accordingly, we determine that Sanders does not anticipate claim 14 because it fails to disclose the required feature that the "first laser signal operates at approximately 980 nm."

Claim 15

Claim 15, which depends from claim 13, requires that the "wavelength shifting fiber comprises one or more gratings." As discussed above with respect to claims 1 and 13, BAE Systems identifies Sanders' fiber oscillator 112 as the claimed "wavelength shifting fiber." Sanders describes fiber oscillator 112 as including Bragg gratings 111 and 113 for Raman wavelength shifting. (Ex. 1010, 20:61-67, Fig. 19.)

Claim 19

Claim 19, which depends from claim 13, requires that the "gain fiber comprises at least in part a cladding pumped fiber." As discussed above, BAE Systems identifies fiber amplifier 69A as the claimed "gain fiber." Furthermore, Sanders states that fiber amplifier 69A includes *inner cladding* 69C. (Ex. 1010, 17:12-19, 16:24-25 (referring to fiber amplifier 69A as "double-clad fiber 69A"), Figs 11, 12.) The remaining two claim features of claim 19, that the "wavelength shifting fiber comprises one or more gratings" and that the "nonlinear oscillator comprises one or more reflectors surrounding a nonlinear element," are essentially the same as those required by claims 15 and 17. Accordingly, based on the same reasoning provided with respect to claim 15 and 17, we determine that BAE Systems has made a threshold showing with respect to those limitations of claim 19.

In summary, we hold that BAE Systems has demonstrated a reasonable likelihood it would prevail in establishing that claims 1, 4, 13, 15, 17, and 19 are anticipated by Sanders.

C. Obviousness over Sanders (Ex. 1010)

BAE Systems contends that claim 14 is rendered obvious over Sanders. (Pet. 30-31.) Based on our review of the record before us, we determine that there is a reasonable likelihood that claim 14 would have been obvious. As discussed above, we do not find that Sanders expressly discloses the required "first laser signal operates at approximately 980 nm" feature of claim 14. However, we determine that there is a reasonable likelihood that Sanders renders obvious that claim feature.

Sanders discloses that pump source 65A at wavelength λ_p, which BAE Systems equates with the "first laser signal," is coupled into the inner cladding 69C of fiber amplifier 69A, while injection source 66A at wavelength λ_I is coupled into core 69B. (Ex. 1010, 17:12-19; Figs. 11 and 12.) Sanders further teaches that Er^{3+} may be used as the dopant for an amplifying fiber, specifically core 69B of fiber amplifier 69A. (Ex. 1010, 16:12-16.) BAE Systems argues that a person of ordinary skill in the art would have known that inner cladding 69C, with which pump source 65A at wavelength λ_p is coupled, could have likewise been doped with Er^{3+}. (Pet. 30-31.) Sanders further teaches that Er^{3+}-doped fiber amplifiers are often pumped with 980-nm light. (Ex. 1010, 13:20-55; Table 1[1].) Therefore, we determine that BAE Systems has shown sufficiently that it would have been obvious to a person of ordinary skill in the art that pump source wavelength λ_p could have been 980 nm. We further credit the testimony of Dr. Smith that a person of ordinary skill would have known at the time of the invention to use 980 nm as the pump wavelength λ_p for the fiber amplifier 69A. (Ex. 1011, (Smith Decl.), ¶ 40.) In addition, there is a reasonable likelihood that it would have been obvious to one of ordinary skill in the art, based on Sanders' disclosure that doping fiber amplifiers with Er^{3+} were known in the art, to have applied a known dopant such as Er^{3+} from a finite number of dopants. Such doping would have resulted in a wavelength of 980 nm, as Sanders also discloses. Furthermore, as discussed above with respect to claim 19, Sanders' fiber amplifier 69A, *i.e.*, the claimed "gain fiber," includes *inner cladding* 69C, thereby teaching that the "gain fiber comprises at least in part a cladding pumped fiber." (Ex. 1010, 17:12-19, 16:24-25 (referring to fiber amplifier 69A as "double-clad fiber 69A"), Figs 11, 12.)

[1] We note that Table 1 identifies "pump source" wavelength as λ_1, but Figure 11 identifies the "pump source" wavelength as λ_p. (Ex. 1010, 13:22-23, 16:66-67, Table 1, Fig. 11.) This difference does not affect our analysis.

While Cheetah does not specifically argue that claim 14 is not obvious over Sanders, we address Cheetah's "teaching away" argument for clarity. "A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant." *In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994). Cheetah argues that Sanders actually teaches away from the claims because Sanders does not teach that all "high power pump source 61" elements, such as those referenced in figure 19, are identical to that of figure 11. (Prelim. Resp. 18.) Cheetah correctly points out that Sanders teaches alternative embodiments for the "high power pump source 61." However, the mere disclosure of an alternative embodiment does not teach away from the disclosed embodiment. *See In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004) ("The prior art's mere disclosure of more than one alternative does not constitute a teaching away from any of these alternatives because such disclosure does not criticize, discredit, or otherwise discourage the solution claimed.") Cheetah has not shown that any of the alternative embodiments for "high power pump source 61" criticize, discredit, or otherwise discourage the teachings relating to figures 11 and 19.

In summary, we hold that BAE Systems has demonstrated a reasonable likelihood it would prevail in establishing that claim 14 is rendered unpatentable as obvious over Sanders.

III. CONCLUSION

For the foregoing reasons, we determine that based on the record before us there is a reasonable likelihood that BAE Systems would prevail on its challenge to the patentability of claims 1, 4, 13-15, 17, and 19 of the '673 patent.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that pursuant to 35 U.S.C. § 314, an *inter partes* review of the '673 patent is hereby instituted for the following grounds:

1. Claims 1, 4, 13, 15, 17, and 19 as anticipated by Sanders under 35 U.S.C. § 102(b); and
2. Claim 14 as unpatentable over Sanders under 35 U.S.C. § 103(a);

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(d) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial commencing on the entry date of this decision; and

FURTHER ORDERED that an initial conference call with the Board is scheduled for 1 PM Eastern Time on July 24, 2013. The parties are directed to the Office Trial Practice Guide, 77 Fed. Reg. 48756, 48765-66 (Aug. 14, 2012) for guidance in preparing for the initial conference call, and should come prepared to discuss any proposed changes to the Scheduling Order entered herewith and any motions the parties anticipate filing during the trial.

Petitioner:

Jeffrey Sanok
Suzanne Walts
Crowell & Moring LLP
JSanok@Crowell.com
SWalts@Crowell.com

Patent Owner:

Richard Krukar
Kermit Lopez
Ortiz & Lopez, PLLC
krukar@olpatentlaw.com
klopez@olpatentlaw.com