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Paper 15
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ASML NETHERLANDS B.V., EXCELITAS TECHNOLOGIES CORP.,
and QIOPTIQ PHOTONICS GMBH & CO. KG,
Petitioner,

v.

ENERGETIQ TECHNOLOGY, INC.,
Patent Owner.

Case IPR2016-00127
Patent 8,969,841 B2

Before SALLY C. MEDLEY, JONI Y. CHANG, and
BARBARA A. PARVIS, *Administrative Patent Judges.*

CHANG, *Administrative Patent Judge.*

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

I. INTRODUCTION

ASML Netherlands B.V., Excelitas Technologies Corp., and Qioptiq Photonics GmbH & Co. KG (collectively, "Petitioner") filed a Petition requesting an *inter partes* review of claims 10, 13, and 14 of U.S. Patent No. 8,969,841 B2 (Ex. 1101, "the '841 patent"). Paper 4 ("Pet."). Energetiq Technology, Inc. ("Patent Owner") did not file a Preliminary Response. We have jurisdiction under 35 U.S.C. § 314(a).

For the reasons set forth below, we institute an *inter partes* review as to claims 10, 13, and 14 of the '841 patent.

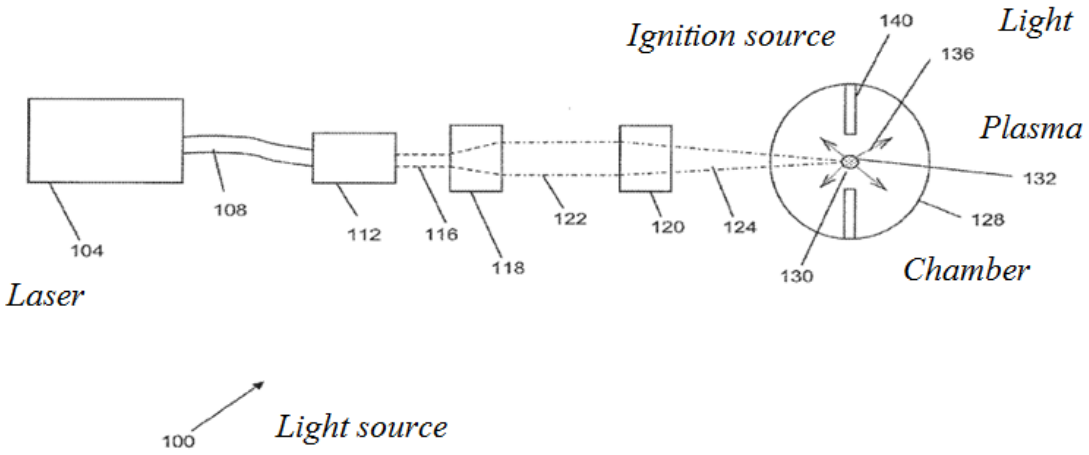
A. Related Matter

The parties indicate that the '841 patent is asserted in *Energetiq Techn., Inc. v. ASML Netherlands B.V.*, No. 1:15-cv-10240-LTS (D. Mass.), and identify related proceedings. Pet. 1; Paper 12, 2–3.

B. The '841 Patent

The '841 patent claims under 35 U.S.C. § 120, through a series of continuation and continuation-in-part applications, the benefit of the filing date of an application filed March 31, 2006. Ex. 1101, at [63]; Ex. 1002. The '841 patent discloses a light source comprising a laser that ionizes a gas within a chamber to produce a plasma-generated light. *Id*. at Abs. According to the '841 patent, such a light source can be used as a source of illumination in a semiconductor photolithographic system. *Id*. at 1:31–39.

Figure 1 of the ’841 patent illustrates a block diagram of a light source, and is reproduced below with annotations added.



As shown in annotated Figure 1, light source 100 includes laser 104, chamber 128, and ignition source 140. *Id*. at 14:40–16:5. Laser 104 outputs laser beam 116 via fiber optic element 108. *Id*. Collimator 112 directs the laser beam to beam expander 118, which produces laser beam 122 and directs it to optical lens 120. *Id*. Optical lens 120 focuses the beam to produce smaller diameter laser beam 124 and directs it to region 130. *Id*. Plasma 132 is generated within the chamber to produce light 136. *Id*.

C. Illustrative Claim

Claims 13 and 14 each, directly or indirectly, depend from claim 10, which is reproduced below.

> 10. A laser driven light source comprising:
>
> a light bulb defining a *sealed pressurized chamber* containing a gas at an operating pressure of greater than 10 atmospheres;
>
> *an ignition source* for ionizing a gas within the light bulb,

> at least one at least substantially *continuous laser* for providing energy within a wavelength range of up to about 2000 nm to the ionized gas to sustain a plasma within the light bulb to produce a plasma-generated light having output wavelengths greater than 50 nm,
>
> the *sealed pressurized chamber* further comprising a region of material which is transparent to at least a portion of the plasma-generated light, the region of material allowing said portion of the plasma-generated light to exit the light bulb and illuminate a surface.

Ex. 1101, 49:21–37 (emphases added).

D. Prior Art of Record

In support of its Petition, Petitioner proffers the following prior art references[1]:

Gärtner	FR 2554302 A1	May 3, 1985	(Ex. 1104)
Kensuke	JP 2006010675 A	Jan. 12, 2006	(Ex. 1105)
Mourou	WO 2004/097520 A2	Nov. 11, 2004	(Ex. 1114)
Cross	US 4,780,608	Oct. 25, 1988	(Ex. 1115)
Kane	US 6,541,924 B1	Apr. 1, 2003	(Ex. 1118)
Eastlund	US 6,414,436 B1	Jul. 2, 2002	(Ex. 1127)
Noelscher	US 2008/0055712 A1	Mar. 6, 2008	(Ex. 1128)

> WILLIAM T. SILFVAST, LASER FUNDAMENTALS 1–6, 199–222, 565–68 (2d ed. 2004). Ex. 1106 ("Silfvast").
>
> HANDBOOK OF LASER TECHNOLOGY AND APPLICATIONS, Volume III: Applications 1,587–611 (Colin E. Webb & Julian D.C. Jones 2004). Ex. 1116 ("Laser Handbook").

[1] The citations to Gärtner and Kensuke are to their certified English-language translations in Exhibits 1004 and 1005, respectively.

KEEFER, LASER SUSTAINED PLASMA, *in* RADZIEMSKI ET AL., LASER-INDUCED PLASMA AND APPLICATIONS (CRC Press 1989). Ex. 1117 ("Keefer").

RARE-EARTH-DOPED FIBER LASERS AND AMPLIFIERS 144–70 (Michel J. F. Digonnet 2d ed. 2001). Ex. 1122 ("Digonnet").

KELIN KUHN, LASER ENGINEERING, Chapters 11 and 12 at 365–77 (Prentice Hall 1998). Ex. 1123 ("Kuhn").

I. M. Beterov et al., *Resonance Radiation Plasma (Photoresonance Plasma)*, 31 (6) SOV. PHYS. USP. 535–54 (1988). Ex. 1124 ("Beterov").

R. Bussiahn et al., *Experimental and Theoretical Investigations of a Low-Pressure He-Xe Discharge for Lighting Purpose*, 95 JOURNAL OF APPLIED PHYSICS 4,627–34 (May 1, 2004). Ex. 1125 ("Bussiahn").

CHRISTOPHER C. DAVIS, LASER AND ELECTRO-OPTICS: FUNDAMENTALS AND ENGINEERING (reprint 2000) (Cambridge Univ. Press 1996). Ex. 1126 ("Davis").

E. Asserted Grounds of Unpatentability

Petitioner asserts the following grounds (Pet. 22, 44):

Claims	Basis	References
10, 13, and 14	§ 103(a)	Gärtner in view of Mourou and Silfvast[2]
10, 13, and 14	§ 103(a)	Gärtner in view of Kensuke and Silfvast

[2] Silfvast is omitted inadvertently from each statement of the asserted grounds, although discussed in the Petitioner's analysis. Pet. 31–32, 49–50. Therefore, we treat the statements of the asserted grounds as mere harmless error and presume that Petitioner intended to assert that the challenged claims are unpatentable based, in part, on Silfvast.

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