

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SPTS TECHNOLOGIES LTD.,
Petitioner,

v.

PLASMA-THERM LLC,
Patent Owner.

Case IPR2017-01314
Patent 8,980,764 B2

Before WILLIAM V. SAINDON, ELIZABETH M. ROESEL, and
AMANDA F. WIEKER, *Administrative Patent Judges*.

ROESEL, *Administrative Patent Judge*.

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

IPR2017-01314
Patent 8,980,764 B2

This case concerns U.S. Patent No. 8,980,764 B2 (Ex. 1001, “the ’764 patent”). SPTS Technologies Limited (“Petitioner”) filed a Petition seeking *inter partes* review of claims 1–5 of the ’764 patent (Paper 2, “Pet.”). Plasma-Therm LLC (“Patent Owner”) filed a Preliminary Response. Paper 6 (“Prelim. Resp.”).

We have authority to determine whether to institute an *inter partes* review. 35 U.S.C. § 314; 37 C.F.R. § 42.4(a). An *inter partes* review may be authorized only if the information presented in the Petition and the Preliminary Response shows that there is a reasonable likelihood that Petitioner would prevail with respect to at least one claim challenged in the Petition. 35 U.S.C. § 314(a).

Petitioner challenges claims 1–5 of the ’764 patent as unpatentable under 35 U.S.C. § 103. Pet. 6. Based on the arguments and evidence presented in the Petition and Preliminary Response, we determine that Petitioner has not established a reasonable likelihood that it would prevail with respect to at least one of the claims challenged in the Petition. Therefore, institution of an *inter partes* review is denied.

I. BACKGROUND

A. *Related Matters*

The parties identify no related litigation matters pursuant to 37 C.F.R. § 42.8(b)(2). Pet. 4; Paper 5, 1 (Patent Owner’s Mandatory Notices).

In IPR2017-01457, also pending before the Board, Petitioner challenges claims 1, 3, and 4 of U.S. Patent No. 9,202,720 B2 (“the ’720 patent”). The ’764 patent and the ’720 patent claim priority to the same U.S. Application No. 13/412,119, filed March 5, 2012, and to the same U.S. Provisional Application No. 61/452,450, filed March 14, 2011.

B. Petitioner's Asserted Ground of Unpatentability

Petitioner asserts that claims 1–5 of the '764 patent are unpatentable under 35 U.S.C. § 103 as obvious over the following references:

Reference	U.S. Patent/Pub. No.	Issue/Pub. Date	Exhibit
Sekiya	2004/0115901 A1	June 17, 2004	1005
Todorow	2006/0000805 A1	Jan. 5, 2006	1006
Nisany	2009/0183583 A1	July 23, 2009	1007
Ogasawara	7,411,384 B2	Aug. 12, 2008	1008

Pet. 6. Petitioner supports its challenge with a Declaration of Dr. John E. Spencer. Ex. 1009. Patent Owner supports its Preliminary Response with a Declaration of Stanley Shanfield, Ph.D. Ex. 2001.

C. The '764 Patent (Ex. 1001)

The '764 patent issued March 17, 2015 from U.S. Application No. 13/764,160, filed February 11, 2013. Ex. 1001, (21), (22).

The '764 patent discloses a method for plasma dicing a semiconductor wafer. *Id.* (54). Dicing is a process by which individual semiconductor devices (die or chips) are separated from each other after they have been fabricated on a substrate, such as a silicon wafer. *Id.* at 1:25–26, 2:16–18. Dicing can be carried out by mechanical means, such as breaking along scribe lines or sawing, or by plasma etching. *Id.* at 2:18–25, 2:49–51. According to the '764 patent, plasma dicing has a number of benefits over mechanical dicing, but current plasma etching equipment is not suitable for processing substrates that are “fixtured for dicing.” *Id.* at 2:59–67, 3:5–21. The '764 patent aims to provide a plasma etching method that is “compatible

with the established wafer dicing technique of handling a substrate mounted on tape and supported in a frame” *Id.* at 3:47–52.

A substrate mounted on tape and supported in a frame is shown in Figure 3, which is reproduced below:

Figure 3

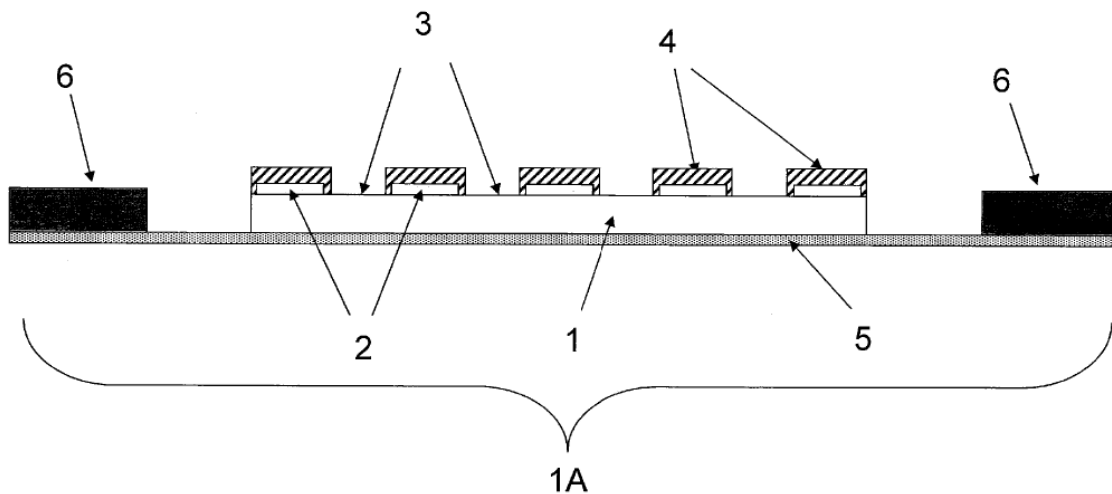


Figure 3 of the '764 patent is a cross-sectional view of work piece 1A (also referred to substrate/tape/frame assembly 1A), including substrate 1 adhered to tape 5, which is mounted in rigid frame 6. Ex. 1001, 9:33–35. Substrate 1 has device structures 2 separated by street areas 3. *Id.* at 8:57–61; *see also* Fig. 1 (showing top down view of substrate with device structures separated by streets). Device structures 2 are covered with protective material 4, such as a photoresist, while street areas 3 remain unprotected. *Id.* at 9:1–5.

A processing chamber for carrying out a plasma dicing method is shown in Figure 6, which is reproduced below:

Figure 6

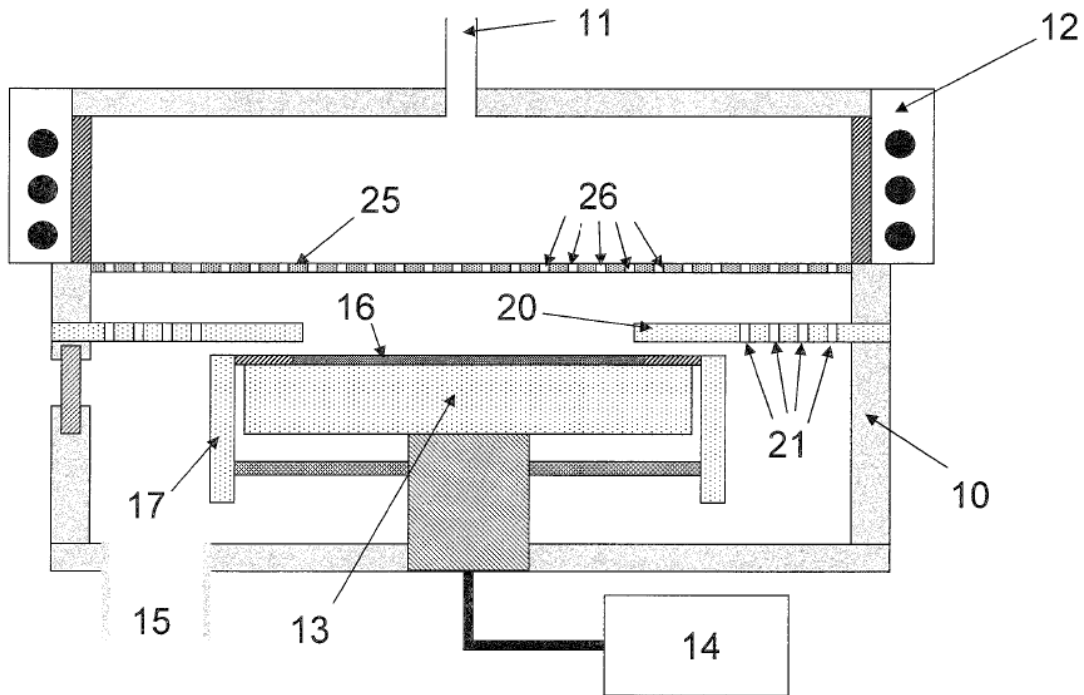


Figure 6 of the '764 patent shows vacuum processing chamber 10 equipped with gas inlet 11, high density plasma source 12, work piece support 13, RF power source 14, vacuum pump 15, Electrostatic Chuck ("ESC") 16, lifting mechanism 17, cover ring 20 with a plurality of holes 21, and conductive screen 25 with a plurality of holes 26. Ex. 1001, 9:61–10:2, 10:35–37, 11:12–19, 12:29–40. During processing, unprotected street areas 3 of substrate 1 are etched away using a reactive plasma etch process to separate devices 2 into individual die. *Id.* at 10:2–5. Conductive screen 25 may be made from aluminum or aluminum coated with a plasma resistant coating. *Id.* at 12:29–37. Conductive screen 25 reduces ion bombardment from the plasma on the substrate, while holes 26 allow neutral species from the plasma to reach the substrate. *Id.*

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