

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LAM RESEARCH CORP.,
Petitioner,

v.

DANIEL L. FLAMM,
Patent Owner.

Case IPR2015-01766
Patent RE 40,264 E

Before DONNA M. PRAISS, CHRISTOPHER L. CRUMBLEY, and
JO-ANNE M. KOKOSKI, *Administrative Patent Judges*.

PRAISS, *Administrative Patent Judge*.

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

I. INTRODUCTION

Lam Research Corp. (“Petitioner”) filed a Petition (Paper 1, “Pet.”) to institute an *inter partes* review of claims 27, 31, 32, 34, 37, 40, 41, 44, 47, 48, and 50 of U.S. Patent No. RE 40,264 E (Ex. 1001, “the ’264 patent”) pursuant to 35 U.S.C. §§ 311–319. Daniel L. Flamm (“Patent Owner”) filed a Preliminary Response (Paper 6, “Prelim. Resp.”).

We have jurisdiction under 35 U.S.C. § 314, which provides that an *inter partes* review may be authorized only if “the information presented in the petition . . . and any [preliminary] response . . . 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.” 35 U.S.C. § 314(a).

Upon consideration of the Petition, we conclude the information presented does not demonstrate a reasonable likelihood that Petitioner would prevail in showing the unpatentability of any of the challenged claims. Accordingly, we do not institute an *inter partes* review.

A. Related Proceedings

The ’264 patent is the subject of concurrently filed *inter partes* review proceedings IPR2015-01759, IPR2015-01764, and IPR2015-01768.

We are informed that the ’264 patent is presently at issue in a declaratory judgment action captioned *Lam Research Corp. v. Daniel L. Flamm*, Case 5:15-cv-01277-BLF (N.D. Cal.), and in an infringement action captioned *Daniel L. Flamm v. Samsung Electronics Co., Ltd., et al.*, Case 1:15-cv-613 (W.D. Tex.). Pet. 3; Paper 4, 1.

B. The '264 Patent (Ex. 1001)

The '264 patent, titled “Multi-Temperature Processing,” is directed to a method “for etching a substrate in the manufacture of a device,” where the method “provide[s] different processing temperatures during an etching process or the like.” Ex. 1001, Abstract. The apparatus used in the method is shown in Figure 1 below.

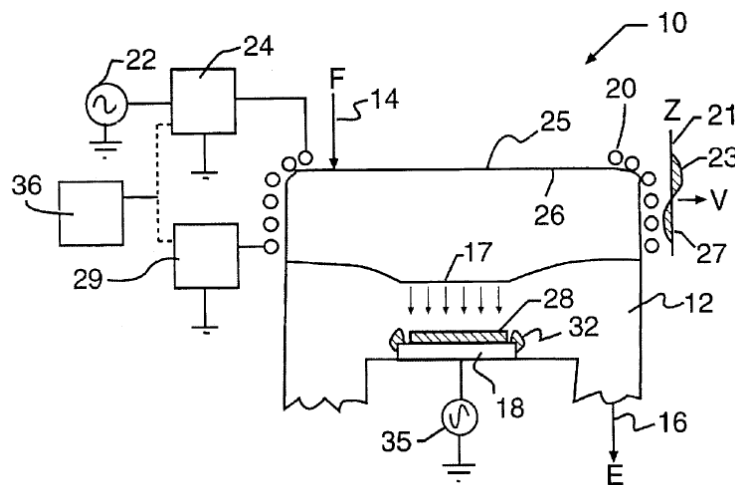


FIG. 1

Figure 1 depicts a substrate (product 28, such as a wafer to be etched) on a substrate holder (product support chuck or pedestal 18) in a chamber (chamber 12 of plasma etch apparatus 10). *Id.* at 3:24–25, 3:32–33, 3:40–41.

Figures 6 and 7, below, depict a temperature-controlled substrate holder and temperature control systems.

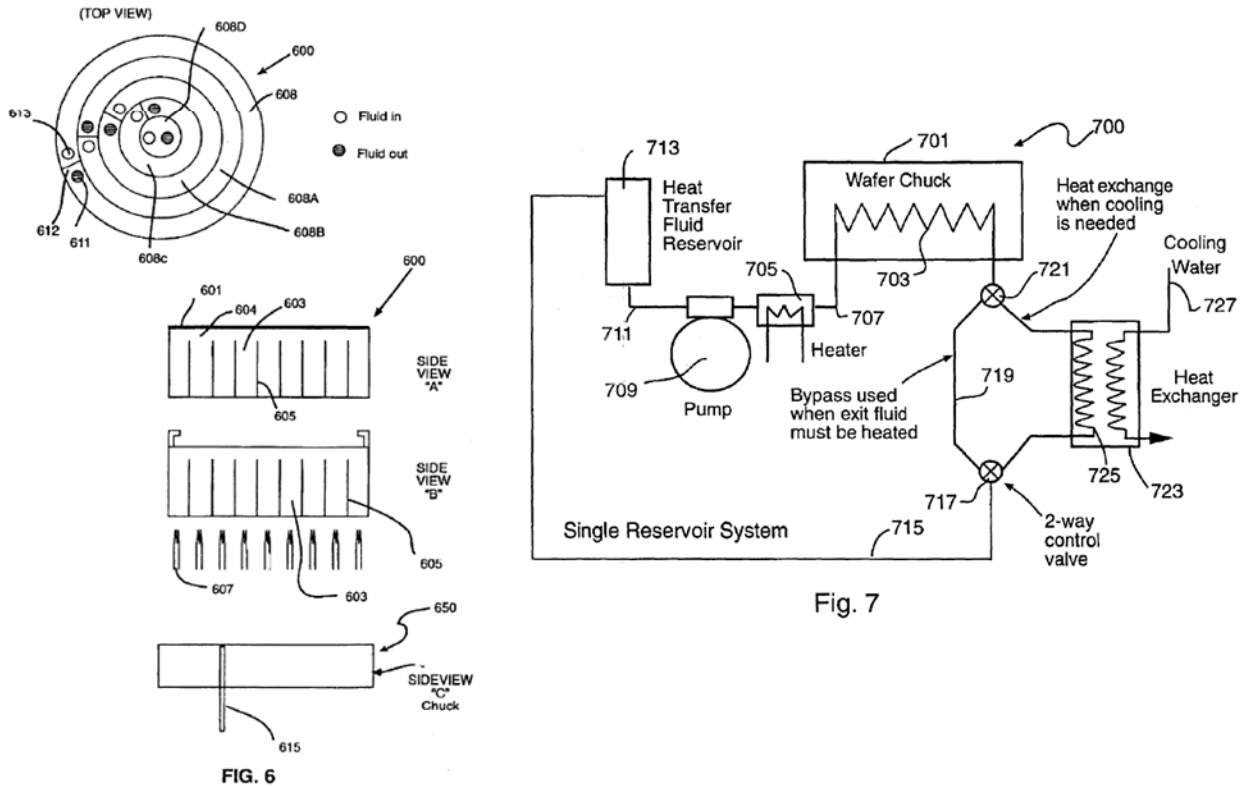


Fig. 7

Figures 6 and 7 depict temperature-controlled fluid flowing through substrate holder (600, 701), guided by baffles 605, where “the fluid [is] used to heat or cool the upper surface of the substrate holder.” *Id.* at 14:62–63; 16:5–67. Figure 6 also depicts heating elements 607 underneath the substrate holder, where “[t]he heating elements can selectively heat one or more zones in a desirable manner.” *Id.* at 15:10–26. Referring to Figure 7, the temperature control operation is described as follows:

The desired fluid temperature is determined by comparing the desired wafer or wafer chuck set point temperature to a measured wafer or wafer chuck temperature The heat exchanger, fluid flow rate, coolant-side fluid temperature, heater power, chuck, etc. should be designed using conventional means to permit the heater to bring the fluid to a

setpoint temperature and bring the temperature of the chuck and wafer to predetermined temperatures within specified time intervals and within specified uniformity limits.

Id. at 16:36–39 and 50–67.

An example of a semiconductor substrate to be patterned is shown in Figure 9, below.

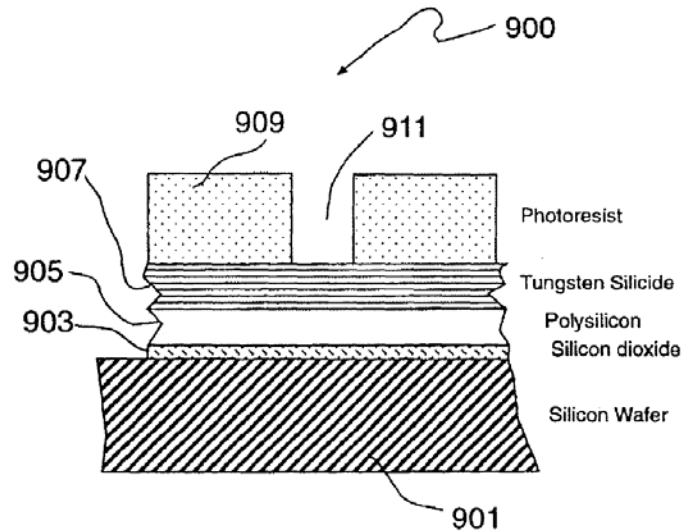


Figure 9 depicts substrate 901 having a stack of layers including oxide layer 903, polysilicon layer 905, tungsten silicide layer 907, and photoresist masking layer 909 with opening 911 from the treatment method shown in Fig. 10, below. *Id.* at 17:58–18:57.

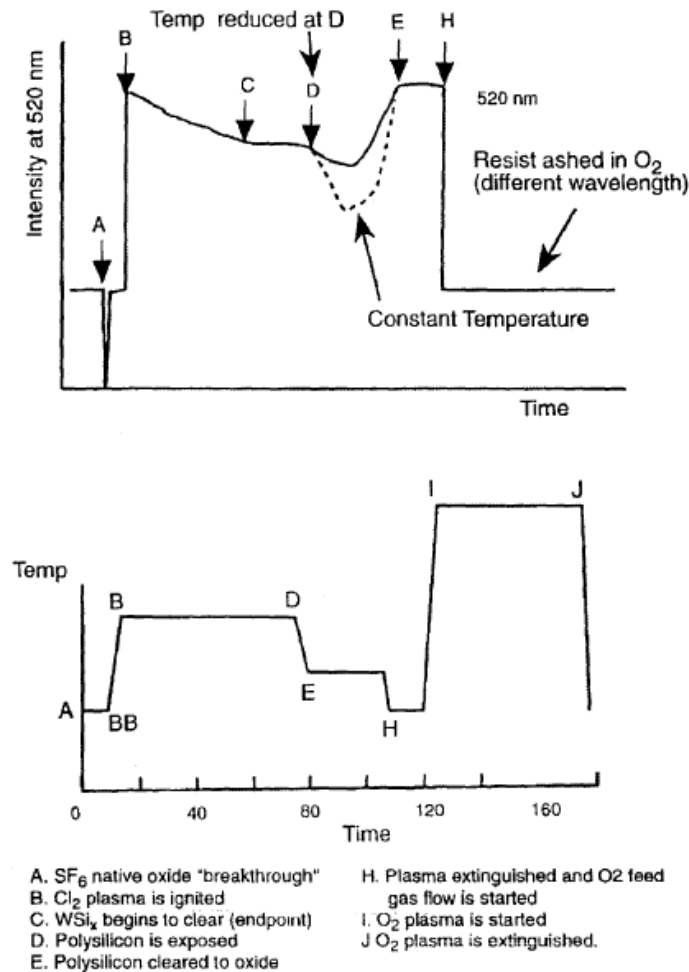


Fig. 10

Figure 10 depicts the tungsten silicide layer being etched between points B and D at a constant temperature; the polysilicon layer being exposed between Points D and E; the polysilicon layer being etched at a constant temperature beyond point E; and the resist being ashed beyond Point I. *Id.* at 18:58–19:64. The plasma's optical emission at 530 nm is monitored to determine when there is breakthrough to the polysilicon layer (Point D) and a lower etch temperature is required to etch the polysilicon layer (Point E). *Id.* at 19:8–24.

C. Illustrative Claim

Claims 27 and 37 are the only independent claims of the '264 patent challenged in the Petition. Claim 37, reproduced below, is illustrative of the claims at issue:

37. A method of processing a substrate during the manufacture of a device, the method comprising:

placing a substrate having a film thereon on a substrate holder within a chamber of a plasma discharge apparatus, the plasma discharge apparatus comprising: a substrate temperature control system comprising a substrate temperature sensor and a substrate temperature control circuit operable to adjust the substrate temperature to a predetermined substrate temperature value with a first heat transfer process; and a substrate holder temperature control system comprising a substrate holder temperature sensor and a substrate holder temperature control circuit operable to adjust the substrate holder temperature to a predetermined substrate holder temperature value with a second heat transfer process;

performing a first film treatment of a first portion of the film at a selected first substrate temperature;

with the substrate temperature control circuit, changing from the selected first substrate temperature to a selected second substrate temperature, the selected second substrate temperature being different from the selected first substrate temperature; and

performing a second film treatment of a second portion of the film at the selected second substrate temperature;

wherein the substrate holder is heated above room temperature during at least one of the first or the second film treatments, and the substrate temperature control circuit is operable to change the substrate temperature from the selected first substrate temperature to the selected second substrate temperature within a preselected time period to process the film.

Ex. 1001, 22:57–23:20. Claim 27 is directed to a method of etching a substrate in the manufacture of a device. *Id.* at 22:8–9. Claim 27 recites “etching a first portion of the film,” “etching a second portion of the film,” and a substrate temperature change “within a preselected time interval for processing, and at least the first substrate temperature or the second substrate temperature, in single or in combination, is above room temperature.” *Id.* at 22:16–17, 22:25–28.

D. The Prior Art

Petitioner relies on the following prior art:

Reference	Publication	Date	Exhibit
Tegal	EP 0 399 676 A1	Nov. 28, 1990	1002
Matsumura	US 5,151,871	Sept. 29, 1992	1003
Narita	US 4,913,790	Apr. 3, 1990	1004
Hwang	US 5,174,856	Dec. 29, 1992	1005
Nakamura	US 5,316,616	May 31, 1994	1006
Wang	EP 0 272 140 A2	June 22, 1988	1007

Petitioner also relies on the Declaration of Joseph L. Cecchi, Ph.D., dated August 18, 2015 (“Cecchi Declaration,” Ex. 1008), American Heritage Dictionary 1066 (3d ed. 1993) (Ex. 1009), and Merriam-Webster’s Dictionary 921 (10th ed. 1993) (Ex. 1010).

E. The Asserted Grounds

Petitioner challenges claims 27, 31, 32, 34, 37, 40, 41, 44, 47, 48, and 50 of the ’264 patent on the following grounds (Pet. 13, 30, 35):

Claim(s) Challenged	Basis	References
27, 31, 32	§ 103(a)	Hwang, Tegal, Matsumura, and Narita
34	§ 103(a)	Nakamura, Tegal, Matsumura, and Narita
37, 40, 41, 44, 47, 48, 50	§ 103(a)	Wang, Tegal, Matsumura, and Narita

F. Claim Interpretation

Before proceeding with claim construction, we must determine the proper standard to apply. Petitioner contends that the claims of the '264 patent should be given their broadest reasonable construction. Pet. 10. That standard, however, is applicable only to unexpired patents. *See* 37 C.F.R. § 42.100(b) (“A claim in an unexpired patent shall be given its broadest reasonable construction in light of the specification of the patent in which it appears.”).

The term of a patent grant begins on the date on which the patent issues and ends 20 years from the date on which the application for the patent was filed in the United States, “or, if the application contains a specific reference to an earlier filed application or applications under section 120, 121, or 365(c) of this title, from the date on which the earliest such application was filed.” 35 U.S.C. § 154(a)(2) (2002). The earliest patent application referenced for the benefit of priority under 35 U.S.C. § 120, for the '264 patent, was filed on December 4, 1995, and the patent has no term extensions. The term of the '264 patent, thus, expired no later than December 4, 2015.

Because, on this record, we conclude that the term of the '264 patent expired subsequent to the filing of the Petition and the Preliminary Response, but prior to the end of the preliminary stage of an *inter partes*

review, for purposes of this Decision we treat the patent as expired. For claims of an expired patent, the Board's claim interpretation is similar to that of a district court. *See In re Rambus Inc.*, 694 F.3d 42, 46 (Fed. Cir. 2012). "In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence." *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17). There is, however, a "heavy presumption" that a claim term carries its ordinary and customary meaning. *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002).

Petitioner proposes constructions for the claim terms "portion of the film" (claims 27, 34, 37, and 41), "preselected time interval" (claim 27), and "preselected time period" (claim 37). Pet. 10–12. Patent Owner does not dispute the proposed claim constructions in the Preliminary Response.

Based on the current record, we are not persuaded that express construction of any term is necessary in order to resolve the disputes currently before us. Thus, we discern no need to provide any express constructions at this time. *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) ("[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.").

II. DISCUSSION

We turn now to Petitioner's asserted grounds of unpatentability under 35 U.S.C. § 103(a) to determine whether Petitioner has met the threshold

standard of 35 U.S.C. § 314(a). We begin with a description of Tegal, Matsumura, and Narita, which are asserted in each ground argued in the Petition.

A. Prior Art References

1. Tegal

Tegal “relates to plasma etch processes for the manufacture of semiconductor wafers” Ex. 1002, 1:4–5. Figure 1, below, is a schematic of an embodiment for etching a silicon oxide layer at two temperatures in the same chamber.

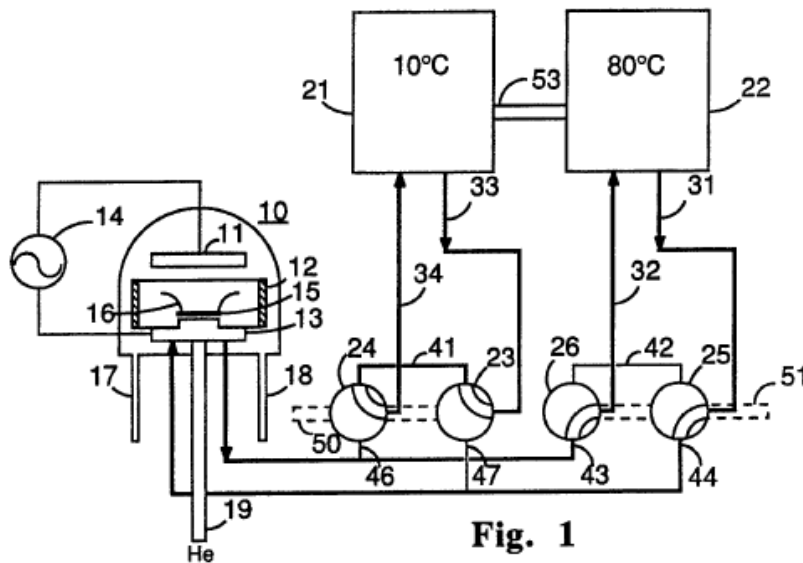


Figure 1 depicts plasma reactor 10 with a chamber having a substrate (wafer 15) on a substrate holder (electrode 13 with plurality of tines 16). *Id.* at 2:52–3:7. The plasma reactor “performs different types of etch, requiring different temperatures, in a single reactor” on the substrate. *Id.* at 1:43–48. For example, “a tapered etch can be performed in oxide through a patterned photoresist” by a first etching at 80°C for an isotropic etch, followed by a second etching at 10°C–40°C for an anisotropic etch. *Id.* at 5:5–45.

2. Matsumura

Matsumura discloses a “method of heat-processing semiconductor devices whereby temperatures of the semiconductor devices can be controlled at devices-heating and -cooling times so as to accurately control their thermal history curve.” Ex. 1003, 2:60–65. Matsumura envisions applying the method to plasma etching when Matsumura states that while “the present invention has been applied to the adhesion and baking processes for semiconductor wafers in the above-described embodiments . . . it can also be applied to any of the ion implantation, CVD, etching and ashing processes.” *Id.* at 10:3–7.

Figure 5A, below, is a schematic of an embodiment for heat-processing a substrate (wafer W) on a substrate holder (wafer-stage 12 which includes upper plate 13 and conductive thin film 14) in chamber 11.

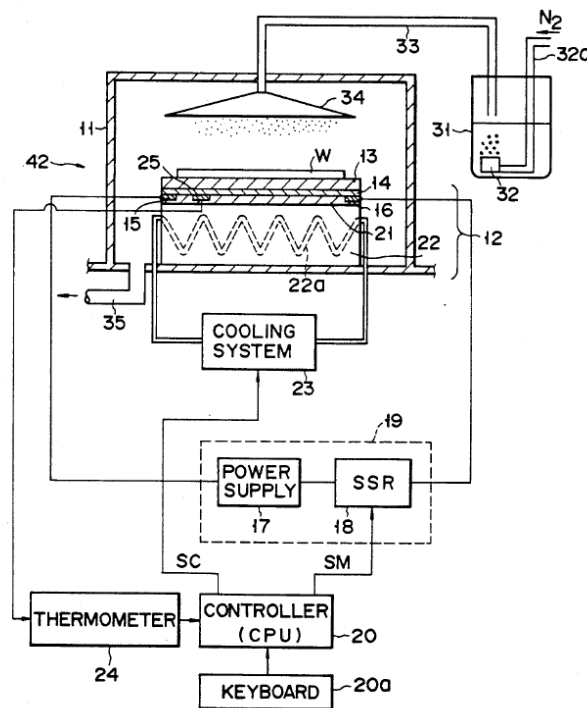


FIG. 5A

Figure 5A depicts adhesion unit 42 with control system 20. Control system 20 measures the temperature of thin film 14 deposited on the underside of upper plate 13 with thermal sensor 25. *Id.* at 5:13–17, 5:32–47, 5:67–6:4. Control system 20 sends signals (SM) to power supply circuit 19 to heat semiconductor wafer W on upper plate 13 by conductive thin film 14; and sends signals (SC) to cooling system 23 to control the amount of coolant supplied to jacket 22. *Id.* at 5:52–6:32, Figs. 5A, 5B.

3. *Narita*

Narita discloses a method for treating “a surface of a workpiece while accurately controlling the temperature of the workpiece.” Ex. 1004, 2:7–10. Narita further discloses that the method can be applied to plasma etching and thermal chemical vapor deposition (CVD), among other treatment methods. *Id.* at 3:3–5. The disclosed treating method “includes a temperature rise step in which first temperature control is performed and a treatment step in which second temperature control is performed.” *Id.* at Abstract. Figure 1, below, is a schematic of an embodiment for a CVD process where there is a substrate (semiconductor wafer 2) on a substrate holder (support member 5).

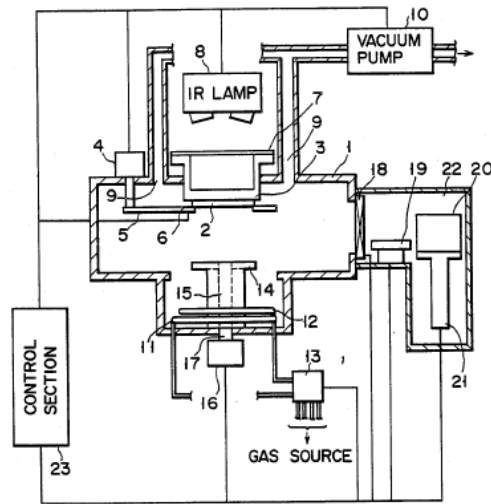


FIG. 1

Figure 1 depicts control section 23 that controls the temperature using two temperature detecting mechanisms: (1) thermocouple 6, which contacts substrate 2, and (2) pyrometer 16, which does not contact the substrate. *Id.* at 3:13–37, 3:65–4:13, 4:26–31.

B. Obviousness over Hwang, Tegal, Matsumura, and Narita

Petitioner contends that claim 27 would have been obvious in view of the etching process disclosed by Hwang as modified by the chamber, control system, and heating and cooling systems of Tegal, Matsumura, and Narita, described above. Pet. 13–23. Petitioner also contends that claims 31 and 32, which each depend from claim 27, would have been obvious in further view of Narita, Tegal, and Matsumura. *Id.* at 23–25. After identifying in the prior art the limitations of claims 27, 31, and 32, Petitioner provides a reason for combining the references. *Id.* at 25–30. We begin with a summary of the Hwang etching process.

1. *Hwang*

Hwang discloses a method “for removing from an integrated circuit structure photoresist remaining after a metal etch.” Ex. 1005, Abstract. The method can be done in the same chamber where the metal etch was done. *Id.* at 3:13–16. The method includes “a first stripping step . . . followed by a subsequent step.” *Id.* at Abstract. The first stripping step maintains the substrate (wafer) temperature from “about 40°C to about 100°C.” *Id.* at 3:13–42. The substrate temperature is then “slowly ramped up, at a rate of about 10° C./second,” to a second temperature. *Id.* at 3:58–4:6. The subsequent step maintains the substrate at the second temperature “of from about 150°C to about 400°C, typically about 245°C” *Id.* at 4:1–32.

2. *Analysis*

Based on our review of Petitioner’s analysis and supporting evidence, in light of the arguments presented by Patent Owner, we are not persuaded that Petitioner has shown that there is a reasonable likelihood that it would prevail in its obviousness challenge to claims 27, 31, and 32.

A showing of obviousness must be supported by an articulated reasoning with rational underpinning to support a motivation to combine the prior art teachings. *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 418 (2007) (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.”)). As explained in *KSR*, “a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.” *Id.*

We find that Petitioner's reason for combining Hwang with Tegal lacks a sufficient rational underpinning. Petitioner contends that Hwang teaches a "metal etch chamber" or a "vacuum stripping chamber" in which to perform a dry etch process for removing a photoresist mask, but "does not provide details about the etch chamber itself." Pet. 25–26. According to Petitioner, a person of ordinary skill in the art would have had reason "to use the chamber taught by Tegal, Matsumura, and Narita to perform the Hwang process" because "Hwang suggests the use of a single chamber but does not provide the specific teachings of the apparatus." *Id.* at 26 (citing Ex. 1008 ¶ 85). The single chamber suggested by Hwang, however, is a stripping chamber. *Id.* at 25 ("Hwang suggests using a single stripping chamber for both photoresist etching steps"). Petitioner states that the Hwang process "could" be performed in the chamber of Tegal, but does not explain why one of ordinary skill in the art *would* have chosen to modify Hwang with the chamber of Tegal. *Id.* at 26. Without such articulated reasoning, Petitioner's contentions are insufficient to establish that claim 27 of the '264 patent would have been obvious based on the combination of Hwang, Tegal, Matsumura, and Narita. *KSR*, 550 U.S. at 418.

For at least this reason, we conclude that Petitioner has not shown a reasonable likelihood of prevailing in its obviousness challenge to claim 27, as well as claims 31 and 32, which depend therefrom, based on the combination of Hwang, Tegal, Matsumura, and Narita.

C. Obviousness over Nakamura, Tegal, Matsumura, and Narita

Petitioner contends that claim 34 would have been obvious in view of the etching process disclosed by Nakamura as modified by the chamber, substrate holder, and electronically controlled heat transfer device of Tegal,

Matsumura, and Narita. Pet. 30–32. After identifying in the prior art the limitations of claim 34, Petitioner provides a reason for combining the references. *Id.* at 33–35. We begin with a summary of the Nakamura etching process.

1. *Nakamura*

Nakamura “relates to dry etching a material such as polycrystalline silicon and silicides with hydrogen bromide or bromine.” Ex. 1006, 1:12–15. For Sample A, a silicon wafer (substrate) with a layer (film) of arsenic-doped polycrystalline silicon was prepared and coated with a patterned photoresist layer. *Id.* at 12:22–30. Sample B was similar except that arsenic “was not ion implanted and phosphorus was thermally diffused into the polycrystalline silicon.” *Id.* at 12:31–34. Each sample was etched at 100°C in an apparatus similar to the Figure 6 apparatus shown below. *Id.* at 13:1–4, 12:49–55.

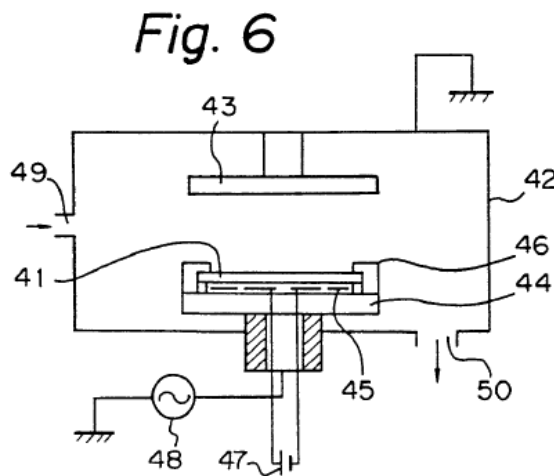


Figure 6 depicts a substrate (wafer 41) on a substrate holder (electrostatic chuck 45 and holder 46) in a chamber (etching chamber 42). Each sample was transferred to a second chamber shown in Figure 8, below, and etched at 60°C. *Id.* at 13:16–31.

Fig. 8

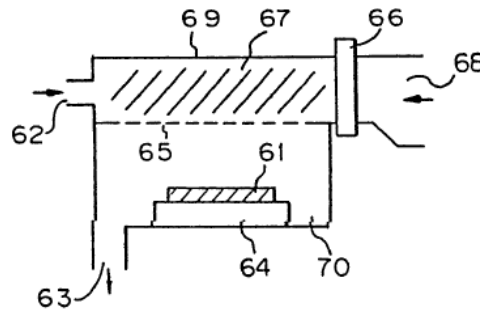


Figure 8 depicts a substrate (wafer 61) on a substrate holder (stage 64) in a chamber (sample chamber 70).

2. Analysis

Based on our review of Petitioner's analysis and supporting evidence, in light of the arguments presented by Patent Owner, we are not persuaded that Petitioner has shown that there is a reasonable likelihood that it would prevail in its obviousness challenge to claim 34 based on Nakamura, Tegal, Matsumura, and Narita.

Petitioner asserts that Nakamura discloses all of the limitations recited in claim 34 because Nakamura teaches etching a polycrystalline silicon layer at 100°C, then etching a photoresist layer at a wafer temperature of 60°C, and therefore "the second portion of the film comprises a material composition that is different from the material composition of the first portion of the film" as recited in the claim. Pet. 30. Claim 34, however, depends from claim 27 and, therefore, includes all of the limitations of claim 27. According to Petitioner, all of the requirements of claim 27 are also met because "the process taught by Nakamura can be performed in the chamber taught by the combination of Tegal, Matsumura, and Narita." *Id.* at 31. Petitioner incorporates its reasons for combining Tegal, Matsumura, and

Narita provided in the context of its combination of Tegal, Matsumura, and Narita with Hwang, discussed above, and further asserts that one of ordinary skill in the art “would have had reasons to use the system taught by Tegal, Matsumura, and Narita to perform the Nakamura process in a single chamber to increase throughput.” *Id.* at 33 (citing Ex. 1008 ¶ 96).

Petitioner, however, does not explain sufficiently how the process of Nakamura in combination with Tegal, Matsumura, and Narita, meets the limitations of claim 27.

Petitioner’s obviousness analysis regarding claim 27 is set forth in the claim chart provided on pages 31–32 of the Petition. In the claim chart, Petitioner provides citations to Nakamura, Tegal, Matsumura, and Narita. *Id.* at 31–32. Providing a road map to where each of the limitations recited in claim 27 may be found in one or more of the cited prior art references is not sufficient to demonstrate a reasonable likelihood of success in showing claim 27 would have been obvious over the combination of Nakamura, Tegal, Matsumura, and Narita. It is Petitioner’s responsibility “to explain specific evidence that support its arguments, not the Board’s responsibility to search the record and piece together what may support Petitioner’s arguments.” *Dominion Dealer Solutions, LLC v. Autoalert, Inc.*, Case IPR2013-00225, slip op. at 4 (PTAB Oct. 10, 2013) (Paper 15); *see DeSilva v. DiLeonardi*, 181 F.3d 865, 866-67 (7th Cir. 1999)(“A brief must make all arguments accessible to the judges, rather than ask them to play archeologist with the record.”). We find that Petitioner has not met its burden.

For at least this reason, we conclude that Petitioner has not shown a reasonable likelihood of prevailing in its obviousness challenge to claim 34 of the ’264 patent based on Nakamura, Tegal, Matsumura, and Narita.

D. Obviousness over Wang, Tegal, Matsumura, and Narita

Petitioner contends that claim 37 would have been obvious in view of the chemical vapor deposition process disclosed by Wang as modified by the chamber, substrate holder, and electronically controlled heat transfer device of Tegal, Matsumura, and Narita. Pet. 35–50. Petitioner also contends that claims 40, 41, 44, 47, 48, and 50 would have been obvious in further view of the disclosures in Wang, Tegal, Matsumura, and Narita. *Id.* at 50–56. After identifying in the prior art the limitations of claims 37, 40, 41, 44, 47, 48, and 50, Petitioner provides a reason for combining the references. *Id.* at 56–60. We begin with a summary of the Wang process.

1. Wang

Wang discloses a “high pressure, high throughput, single wafer, semiconductor processing reactor (10) . . . capable of thermal CVD, plasma-enhanced CVD, plasma-assisted etchback, plasma self-cleaning, and deposition topography modification by sputtering, either separately or as part of in-situ multiple step processing.” Ex. 1007, Abstract. Figure 2, below, depicts reactor (10). *Id.* at 7:28–34.

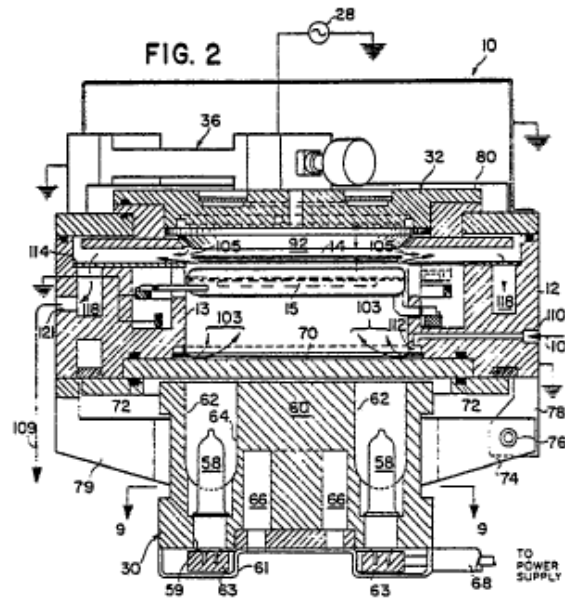


Figure 2 shows a substrate (wafer 15) on a substrate holder (wafer-holding susceptor 16) in a chamber (inner vacuum chamber 13).

Wang further teaches that “[a] preferred in-situ multiple-step process for forming a planarized silicon dioxide layer uses (1) high rate silicon dioxide deposition at a low temperature and high pressure followed by (2) the deposition of the conformal silicon dioxide layer also at high pressure and low temperature, followed by (3) a high rate isotropic etch, preferably at low temperature and high pressure in the same reactor used for the two oxide deposition steps.” *Id.* at Abstract. Step (1) “heat[s] the wafer surface to a temperature of 300 to 500°C” (*id.* at 30:35–36), and, preferably 375°C ± 20°C (*id.* at 30:48–49). Step (2) is run “at temperatures of about 200 to 400°C.” *Id.* at 31:26–27. Step (3) is run “at a temperature in the range of about 100°C to 500°C and preferably 200°C to 400°C.” *Id.* at 32:17–18.

2. Analysis

Based on our review of Petitioner’s analysis and supporting evidence, in light of the arguments presented by Patent Owner, we are not persuaded that Petitioner has shown that there is a reasonable likelihood that it would prevail in its obviousness challenge to claims 37, 40, 41, 44, 47, 48, and 50 based on Wang, Tegal, Matsumura, and Narita.

Petitioner asserts that a person of ordinary skill in the art “would have understood that in addition to performing etching processes, CVD and PECVD processes also could be performed in the Tegal chamber just as all these processes can be performed in the Wang chamber.” Pet. 36. In support of its position, Petitioner cites to both Wang and Tegal disclosing a diode reactor for its chamber. *Id.* (citing Ex. 1007, 6:24–26, 8:51–56; Ex. 1002, 2:38–43). Petitioner does not explain sufficiently why one of ordinary skill in the art would modify Wang with the disclosures in Tegal, other than to state that “CVD and PECVD processes also *could* be performed in the Tegal chamber just as all these processes can be performed in the Wang chamber.” *Id.* (emphasis added); *see also id.* at 58. This is not an explanation why a person of ordinary skill in the art *would have* altered the Wang chamber. For example, Petitioner does not explain sufficiently why one of ordinary skill in the art would modify Wang to include the substrate holder of Tegal. *See id.* at 36–37. Without such articulated reasoning, Petitioner’s contentions are insufficient to establish that claim 37 of the ’264 patent would have been obvious based on the combination of Wang, Tegal, Matsumura, and Narita. *KSR*, 550 U.S. at 418.

For at least this reason, we conclude that Petitioner has not shown a reasonable likelihood of prevailing in its obviousness challenge to claim 37

of the '264 patent based on Wang, Tegal, Matsumura, and Narita. Because claims 40, 41, 44, 47, 48, and 50 each depend from claim 37, we find Petitioner has not shown a reasonable likelihood of prevailing in its obviousness challenge to these claims based on Wang, Tegal, Matsumura, and Narita for the same reason.

III. CONCLUSION

For the foregoing reasons, we do not institute an *inter partes* review of any of the challenged claims of the '264 patent on any of the asserted grounds.

IV. ORDER

Accordingly, it is:

ORDERED that the Petition is DENIED.

IPR2015-01766
Patent RE 40,264 E

PETITIONER:

Michael R. Fleming
Samuel K. Lu
IRELL & MANELLA LLP
mfleming@irell.com
LamFlamIPR@irell.com

PATENT OWNER:

Christopher Frerking
chris@ntknet.com