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Paper No. 7
Filed: October 4, 2017

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TOKYO ELECTRON LIMITED,
Petitioner,

v.

DANIEL L. FLAMM,
Patent Owner.

Case IPR2017-01072
Patent RE40,264 E

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

McGRAW, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
35 U.S.C. § 314(a) and 37 C.F.R. § 42.108

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I. INTRODUCTION

Tokyo Electron Ltd. ("Petitioner") filed a Petition requesting an *inter partes* review of claims 13–26, 64, and 65 ("the challenged claims") of U.S. Patent No. RE40,264 E (Ex. 1001, "the '264 patent"). Paper 1 ("Pet."). Daniel L. Flamm ("Patent Owner") filed a Preliminary Response. Paper 5 ("Prelim. Resp.").

Under 35 U.S.C. § 314(a), an *inter partes* review may not be instituted unless the information presented in the Petition shows "there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition." Taking into account the arguments presented in the Petition and Preliminary Response, we conclude that Petitioner has not established a reasonable likelihood of prevailing with respect to the unpatentability of claims 13–26, 64, and 65. Accordingly, we do not institute an *inter partes* review on those claims.

A. Related Matters

The parties indicate that the '264 patent is asserted in the following proceedings in the Northern District of California, which are currently stayed: Case Nos. 5:16-cv-01578-BLF, 5:16-cv-1579-BLF, 5:16-cv-1580-BLF, 5:16-cv-1581-BLF, 5:16-cv-02252-BLF,[1] and was the subject of a declaratory judgment action in 5:15-cv-01277-BLF, which was dismissed with prejudice. *See* Pet. 2; Paper 4, 1.

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[1] Petitioner states that *Daniel L. Flamm v. Samsung Electronics Co.*, 1:155-cv-613-LY (E.D. Tex.) was transferred to the Northern District of California and is now pending under Case No. 5:16-cv-2252-BLF (N.D. Cal.). Pet. 2.

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Claims of the '264 patent have been the subject of other *inter partes* review proceedings brought by different petitioners, including proceedings in which the Board denied institution of *inter partes* review (i.e., IPR2015-01759, IPR2015-01766, IPR2016-00468, IPR2016-00469, and IPR2016-00470, IPR2016-01510), and proceedings in which the Board did institute *inter partes* review but the parties reached settlement prior to the issuance of a final written decision by the Board (i.e., IP2015-01764, IPR2015-01768). The '264 patent is also the subject of the following *inter partes* review proceedings that are currently pending: IPR2017-00279, IPR2017-00280, IPR2017-00281, and IPR2017-00282.[2]

B. The '264 Patent

The '264 patent, titled "Multi-Temperature Processing," reissued April 29, 2008 from U.S. Patent Application No. 10/439,245 ("the '245 application"), filed on May 14, 2003. Ex. 1001, at [54], [45], [21], [22]. The '264 patent is a reissue of U.S. Patent No. 6,231,776 B1 ("the '776 patent"), which issued on May 15, 2001, from U.S. Patent Application No. 09/151,163 ("the '163 application") filed September 10, 1998. *Id*. at [64]. The '264 patent 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." *Id*. at Abstract. The apparatus used in the method is shown in Figure 1, reproduced below.

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[2] Case Nos. IPR2017-01749, IPR2017-01750, IPR2017-01751, and IPR2017-01752 have been terminated, and the Petitioner of these proceedings has been joined as a party to IPR2017-00279, IPR2017-00280, IPR2017-00281, and IPR2017-00282, respectively.

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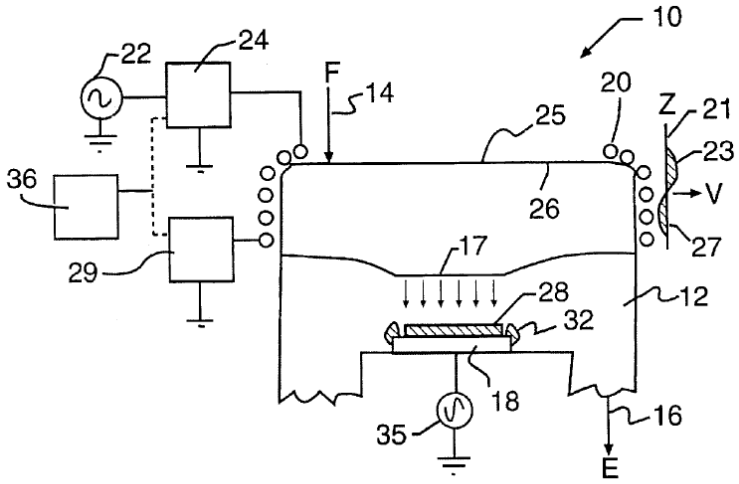

FIG. 1

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, reproduced below, depict a temperature-controlled substrate holder and temperature control systems.

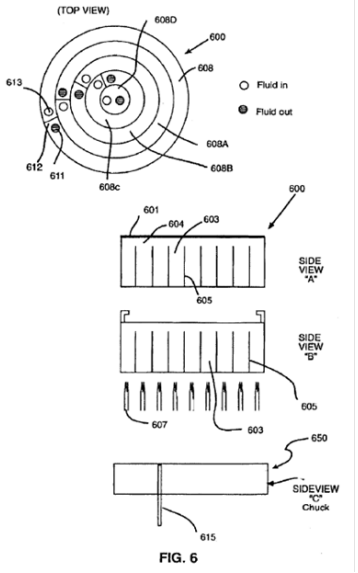

FIG. 6

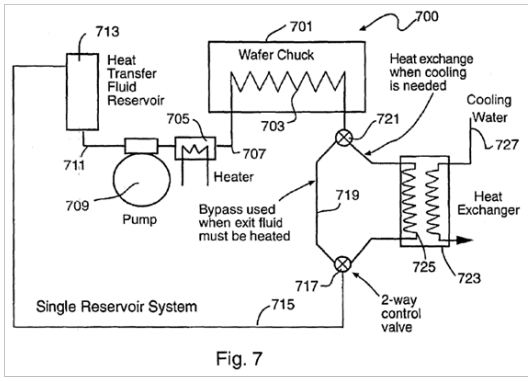

Fig. 7

Figures 6 and 7 depict temperature-controlled fluid flowing through substrate holder (600, 701), guided by baffles 605, where "[t]he fluid [is]

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used to heat or cool the upper surface of the substrate holder." Ex. 1001, 14:28–63, 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 operation of the temperature control system 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, 16:50–67.

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

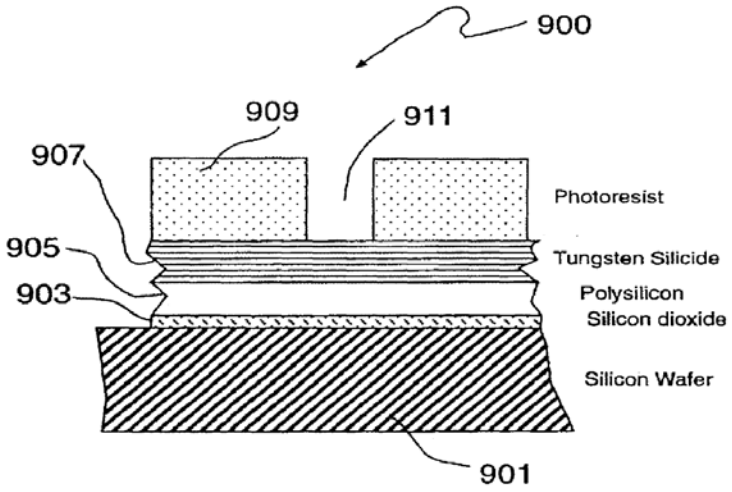

Figure 9 depicts substrate 901 having a stack of layers including oxide layer 903, polysilicon layer 905, tungsten silicide layer 907, and photoresist masking layer 909 with opening 911, from the treatment method shown in

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