

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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SAMSUNG ELECTRONICS CO., LTD.,  
Petitioner,

v.

DANIEL L. FLAMM,  
Patent Owner.

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Case IPR2016-01512  
Patent RE40,264 E

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Before MICHAEL R. ZECHER, CHRISTOPHER L. CRUMBLEY, and  
JO-ANNE M. KOKOSKI, *Administrative Patent Judges*.

ZECHER, *Administrative Patent Judge*.

FINAL WRITTEN DECISION  
*Inter Partes* Review  
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

## I. INTRODUCTION

Petitioner, Samsung Electronics Co., Ltd. (“Samsung”), filed a Petition requesting an *inter partes* review of claims 27, 31, 32, 34, 37, 40, 41, 44, 47, 48, and 50 of U.S. Patent No. RE40,264 E (Ex. 1001, “the ’264 patent”). Paper 1 (“Pet.”). Patent Owner, Daniel L. Flamm (“Flamm”), filed a Preliminary Response. Paper 5. Taking into account the arguments presented in Flamm’s Preliminary Response, we determined that the information presented in the Petition established that there was a reasonable likelihood that Samsung would prevail in challenging claims 27, 31, 32, 34, 37, 40, 41, 44, 47, 48, and 50 of the ’264 patent as unpatentable under 35 U.S.C. § 103(a). Pursuant to 35 U.S.C. § 314, we instituted this *inter partes* review on February 14, 2017, as to all of the challenged claims. Paper 6 (“Dec. on Inst.”).

During the course of trial, Flamm filed a Patent Owner Response (Paper 9, “PO Resp.”), and Samsung filed a Reply to the Patent Owner Response (Paper 12, “Pet. Reply”). An oral hearing was held on October 12, 2017, and a transcript of the hearing is included in the record. Paper 21 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This decision is a Final Written Decision under 35 U.S.C. § 318(a) as to the patentability of claims 27, 31, 32, 34, 37, 40, 41, 44, 47, 48, and 50 of the ’264 patent. For the reasons discussed below, we hold that Samsung has demonstrated by a preponderance of the evidence that these claims are unpatentable under § 103(a).

*A. Related Matters*

The parties represent that the '264 patent is at issue in a district court case captioned *Flamm v. Samsung Electronics Co.*, No. 1:15-cv-613-LY (W.D. Tex.), which was transferred to the U.S. District Court for the Northern District of California on April 27, 2016, and then re-captioned No. 5:16-cv-2252-BLF (N.D. Cal.). Pet. 1; Paper 4, 2. Samsung further represents that the '264 patent was at issue in a number of *inter partes* review proceedings filed by a different petitioner; however, the Board only granted institution in two proceedings, each of which has since terminated following settlement. *See* Pet. 1 n.1.

In addition to this Petition, Samsung filed another petition challenging the patentability of claims 13–26, 64, and 65 of the '264 patent in Case IPR2016-01510. Pet. 1. We denied institution of an *inter partes* review in that proceeding because the information presented in the Petition did not establish that there was a reasonable likelihood that Samsung would prevail in challenging any of claims 13–26, 64, and 65 of the '264 patent as unpatentable under § 103(a). *Samsung Elecs. Co. v. Flamm*, Case IPR2016-01510 (PTAB Feb. 14, 2017) (Paper 6); *see also Samsung Elecs. Co. v. Flamm*, Case IPR2016-01510 (PTAB Apr. 14, 2017) (Paper 8) (denying Samsung's Request for Rehearing). Additional petitions challenging the patentability of certain subsets of claims of the '264 patent were filed by other petitioners, some of which were instituted and remain pending before the Board. *See* Cases IPR2017-00279, IPR2017-00280, IPR2017-00281, IPR2017-00282, IPR2017-01072.

*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 on 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 [57]. The apparatus used in the method is shown in Figure 1, reproduced below.

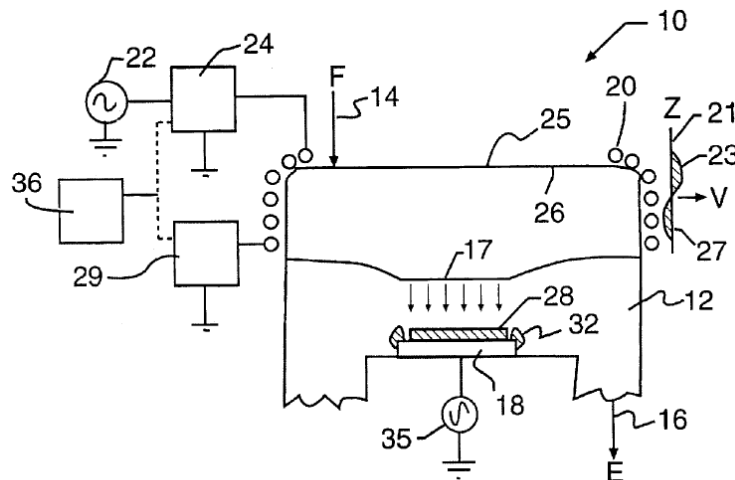
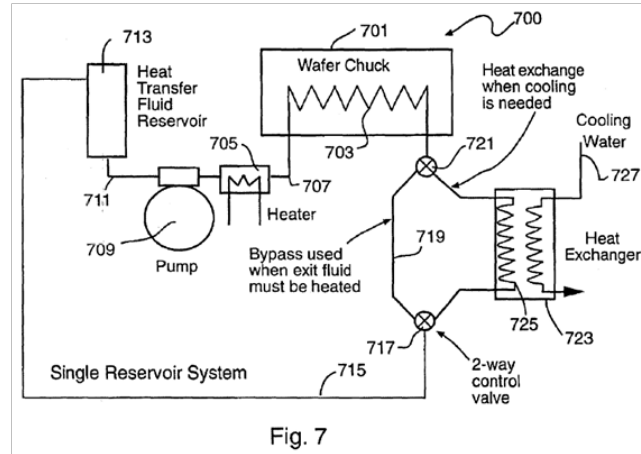
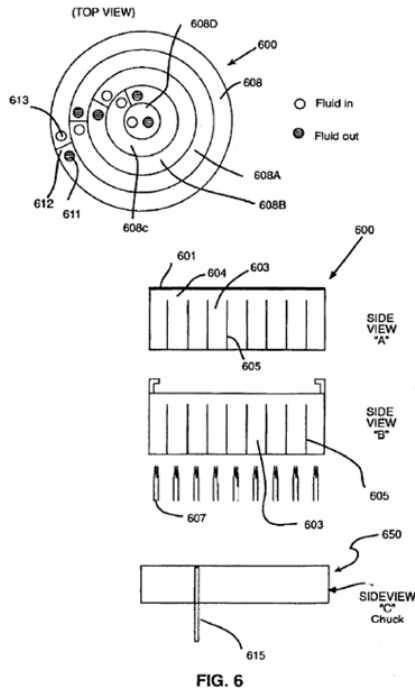


FIG. 1

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



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

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