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Paper 7
Entered: February 24, 2016

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LAM RESEARCH CORP.,
Petitioner,

v.

DANIEL L. FLAMM,
Patent Owner.

Case IPR2015-01768
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
Institution of *Inter Partes* Review
37 C.F.R. § 42.108

Lam Research Corp. ("Petitioner") filed a Petition (Paper 1, "Pet.") to institute an *inter partes* review of claims 51, 55–63, 68, 70, and 71 of U.S. Patent No. RE 40,264 E (Ex. 1001, "the '264 patent") pursuant to 35 U.S.C. §§ 311–319. A Preliminary Response (Paper 6, "Prelim. Resp.") was filed by Daniel L. Flamm ("Patent Owner").

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).

Petitioner challenges claims 51, 55–63, 68, 70, and 71 of the '264 patent under 35 U.S.C. § 103(a). Pet. 12–60. We institute an *inter partes* review as to claims 51, 55–63, 68, 70, and 71 as discussed below.

I. BACKGROUND

A. Related Proceedings

The '264 patent is the subject of concurrently-filed *inter partes* review proceedings IPR2015-01759, IPR2015-01764, and IPR2015-01766.

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.

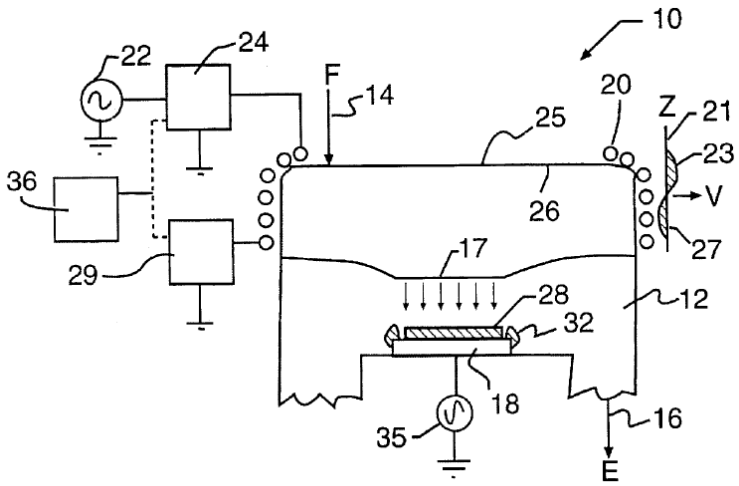

FIG. 1

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 chamber 12 of plasma etch apparatus 10.

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

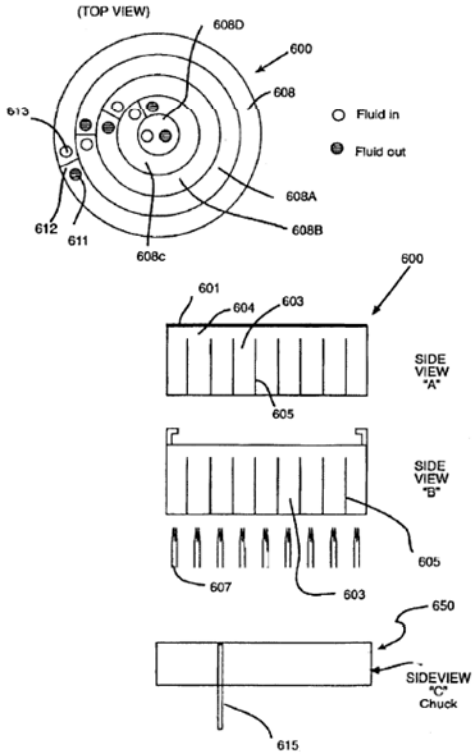

FIG. 6

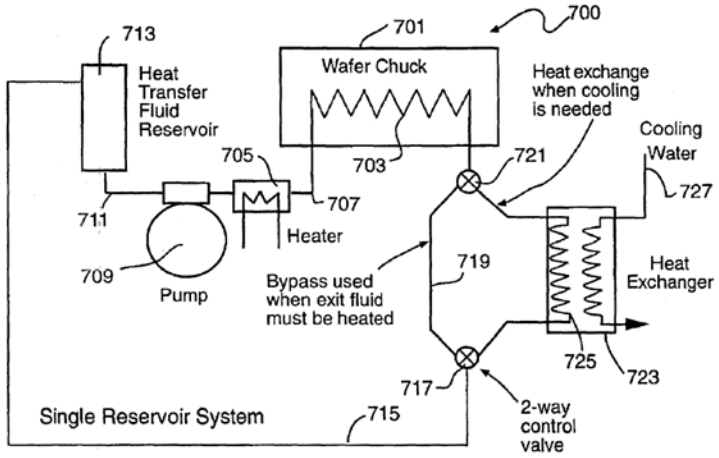

Fig. 7

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

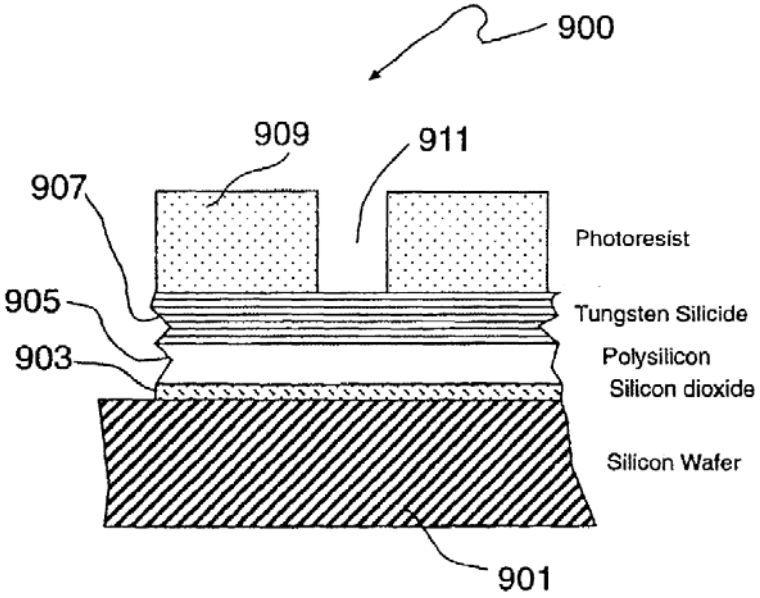

Figure 9 depicts substrate 901 having a stack of layers including oxide layer 903, polysilicon layer 905, tungsten silicide layer 907, and photoresist masking layer 909 with opening 911 from the treatment method shown in Fig. 10 below. *Id*. at 17:58–18:57.

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