

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LAM RESEARCH CORP.,

Petitioner

v.

DANIEL L. FLAMM,

Patent Owner

Case IPR 2016-00466
U.S. Patent No. 5,711,849

Issued: January 27, 1998

Named Inventors: Daniel L. Flamm & John P. Verboncoeur

Title: PROCESS OPTIMIZATION
IN GAS PHASE DRY ETCHING

**PETITIONER LAM RESEARCH CORP.'S
MOTION FOR REHEARING UNDER 37 C.F.R. § 42.71**

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I. INTRODUCTION

On January 14, 2016, Petitioner Lam Research Corp. ("Petitioner") filed a Petition for *inter partes* review ("IPR") (Paper 1), challenging claims 1-29 of U.S. Patent No. 5,711,849 ("the '849 patent") on three grounds:

- Ground 1: claims 26-28 are obvious over Battey (Ex. 1002);
- Ground 2: claims 1-3, 5, 7-12, 14, 16-21 and 29 are obvious over Battey in view of Galewski (Ex. 1003); and
- Ground 3: claims 4, 6, 13, 15 and 22-25 are obvious over Battey in view of Galewski and Sawin (Ex. 1004).

Patent Owner Daniel L. Flamm ("Patent Owner") filed a Patent Owner Preliminary Response (Paper 5) on April 27, 2016. The Patent Trial and Appeal Board ("the Board" or "PTAB") issued its Decision (Paper 7) on July 19, 2016, denying institution of IPR proceedings as to all grounds.

In its decision, the Board focuses on Petitioner's showings with respect to Battey, on which Petitioner relied in whole or in part for every ground of invalidity. With regard to Ground 1, the Board states,

Petitioner does not direct us, with any specificity, to evidence demonstrating sufficiently that Battey's description of quantity h teaches extracting a surface reaction rate constant from etching rate data determined from a relatively non-uniform etching profile. Dr. Cecchi simply states that

Batthey's quantity h is the surface reaction rate constant divided by the diffusivity, and does not expound upon the reasons why a person skilled in the art would understand that to be the case.

Int. Dec., 9. On Ground 2, the Board states, "Galewski does not remedy the deficiencies in Batthey as described above with respect to [Ground 1]," and that

Galewski is directed to epitaxial growth of silicon, and does not discuss etching generally or defining etch rate data specifically. Petitioner does not explain adequately how or why a person having ordinary skill in the art would understand Galewski's surface rate constant, which is used to convert deposition rate to a flux as a function of concentration, to be teaching extracting a surface reaction rate constant as required by the claims of the '849 patent.

Id., 12. Finally, regarding Ground 3, the Board states "Petitioner does not rely on Sawin to teach" the limitations on which the Board's decision rests. *Id.*, 13-14. Instead, the Board again notes it is "not persuaded that Petitioner has demonstrated that the combination of Batthey and Galewski teaches extracting a surface reaction rate constant from etch rate data defined from a relatively non-uniform etching profile," and that "Petitioner does not explain adequately how or why a person having ordinary skill in the art would understand that Batthey's quantity h is the ratio of the surface reaction constant to the diffusion coefficient."

Id.

Petitioner contends that the Board's decision should be modified to institute proceedings on all grounds raised in the January 14, 2016 Petition. In particular, Petitioner contends that the Board's findings that "Dr. Cecchi simply states that Battey's quantity h is the surface reaction rate constant divided by the diffusivity, and does not expound upon the reasons" are unsupported by the substantial evidence. As set forth below, Petitioner specifically identifies where the Petition and accompanying Expert Declaration of Dr. Joseph Cecchi (Ex. 1005) previously and explicitly addressed these matters.

II. STANDARD OF REVIEW

To institute an IPR, the Board must find that there is "a reasonable likelihood that at least one of the claims challenged in the petition is unpatentable." 37 C.F.R. § 42.108(c). "A party dissatisfied with a decision may file a single request for rehearing without prior authorization from the Board." The request must "specifically identify all matters the party believes the Board misapprehended or overlooked, and the place where each matter was previously addressed in a motion, an opposition, or a reply." 37 C.F.R. § 42.71(d).

"When rehearing a decision on petition, a panel will review the decision for an abuse of discretion." 37 C.F.R. § 42.71(c). Abuse of discretion includes "where the decision is based . . . on factual findings that are not supported by substantial evidence" *Gose v. U.S. Postal Serv.*, 451 F.3d 831, 836 (Fed. Cir. 2006). In

particular, "[t]he Board necessarily abuses its discretion when it rests its decision on factual findings unsupported by substantial evidence." *O'Keefe v. U.S. Postal Serv.*, 318 F.3d 1310, 1314 (Fed. Cir. 2002).

III. ARGUMENT

The Board's denial of institution on each and every claim was based on an erroneous finding of fact regarding the Battey reference that was unsupported by substantial evidence. Despite the Petition and Dr. Cecchi's declaration pointing to Battey's express disclosure that h is the ratio of the surface reaction rate constant to the diffusivity, the Board found that "Dr. Cecchi simply states" this to be a fact "and does not expound upon reasons why a person skilled in the art would understand that to be the case." (Int. Dec., 9).

But the original Petition and Cecchi Declaration did in fact point to specific and substantial objective evidence refuting the findings above. Because Petitioner relied in whole or in part on Battey for every ground of invalidity (as described below, Galewski was introduced primarily to address other claim limitations), the Petition therefore establishes the obviousness of claims 1-29 under combinations of Battey, Galewski and Sawin or, at minimum, establishes "a reasonable likelihood that . . . the claims . . . [are] unpatentable." 37 C.F.R. § 42.108(c). Petitioner's motion for rehearing should be granted and the Board should institute review of claims 1-29 of the '849 patent based on the Grounds set forth in the

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