

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today was **not** written for publication and is **not** binding precedent of the Board.

Paper No. 37

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte KOJI WATANABE

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Appeal No. 1997-3731  
Application No. 08/152,089

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ON BRIEF

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Before CALVERT, COHEN, and GONZALES, Administrative Patent Judges.

COHEN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1 and 3 through 7, all of the claims remaining in the application.

Appellant's invention pertains to a dry etching apparatus for etching an object. A basic understanding of the invention can be derived from a reading of exemplary claim 1, a copy of

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which appears in "APPENDIX 1" to the main brief (Paper No. 30).

As evidence of obviousness, the examiner has applied the documents listed below:

Levinstein et al. 1983 (Levinstein '201)	4,419,201	Dec. 6,
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Laporte et al. 1, 1985 (Laporte)	4,491,496	Jan.
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Japanese Patent Soumai et al. 1984 (Japanese) <sup>1</sup>	59-040534	Mar. 6,
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Bennett et al. (Bennett), "SELECTIVE AND DIRECTIONAL ETCHING OF POLYSILICON AND WSi<sub>2</sub>," IBM Technical Disclosure Bulletin, Vol. 25, No. 1, pp 33-34 (1982).

Roland et al. (Roland), "Endpoint detection in plasma etching", Journal of Vacuum Science & Technology/A, Vol. 3, No. 3, pp 631-36 (1985).

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<sup>1</sup> Our understanding of this document is derived from a reading of a translation thereof prepared in the United States Patent and Trademark Office. A copy of the translation is appended to this opinion.

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The following rejection is before us for review.<sup>2</sup>

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<sup>2</sup> On page 2 of the final rejection (Paper No. 25), the examiner included two respective rejections of claims 1 and 3 through 7. On page 3 of the main answer (Paper No. 31), the examiner withdrew the references Levinstein '201 (sic, '516) and IBM Technical Disclosure Bulletin from the first rejection, and withdrew the entirety of the second rejection (although Roland et al and Japanese patent '534 were not mentioned, apparently inadvertently). The rejection now before is the aforesaid first rejection from the final rejection, without the Levinstein '516 and IBM Technical Disclosure Bulletin documents.

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Claims 1 and 3 through 7 stand rejected under 35 U.S.C. § 103 as being unpatentable over Roland in view of either the Japanese reference or Bennett and either Levinstein '201 or Laporte.<sup>3</sup>

The full text of the examiner's rejection and response to the argument presented by appellant appears in the answer (Paper No. 31), while the complete statement of appellant's argument can be found in the main and reply briefs (Paper Nos. 30 and 32).<sup>4</sup>

#### OPINION

In reaching our conclusion on the obviousness issue raised in this appeal, this panel of the board has carefully considered appellant's specification and claims, the applied

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<sup>3</sup> Appellant has appropriately pointed out (main brief, page 6) that the examiner in the answer (page 5) relies upon admitted prior art discussed in the present specification (page 1, line 20 to page 2, line 9) without listing same in the rejection. Where a reference is relied on to support a rejection, whether or not in a minor capacity, there would appear to be no excuse for not positively including the reference in the statement of rejection. See In re Hoch, 428 F.2d 1341, 1342, 166 USPQ 406, 407 (CCPA 1970).

<sup>4</sup> A supplement to the appeal brief was filed by appellant (Paper No. 35), responsive to an order for compliance (Paper No. 34) providing omitted information.

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teachings,<sup>5</sup> and the respective viewpoints of appellant and the examiner. As a consequence of our review, we make the determination which follows.

We reverse the examiner's rejection of appellant's claims.

The "BACKGROUND OF THE INVENTION" section of appellant's specification informs us that, prior to the present invention, a plasma etching apparatus was known that included, inter alia, a reaction chamber with a pair of electrodes therein and a laser beam and detection system for monitoring the thickness of the object to be etched. The object to be etched is placed on one electrode and the beam of the laser passes through an aperture in the opposing electrode. The apparatus is also indicated to generally have a transparent cover of quartz on the electrode with the aperture to protect the electrode from

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<sup>5</sup> In our evaluation of the applied prior art, we have considered all of the disclosure of each document for what it would have fairly taught one of ordinary skill in the art. See In re Boe, 355 F.2d 961, 965, 148 USPQ 507, 510 (CCPA 1966). Additionally, this panel of the board has taken into account not only the specific teachings, but also the inferences which one skilled in the art would reasonably have been expected to draw from the disclosure. See In re Preda, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968).

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unwanted etching. According to appellant, as a result of etching, materials are deposited on the quartz cover, and it has to be cleaned about every 50 hours.

Independent claim 1 is drawn to a dry etching apparatus that comprises, inter alia, the feature of a second electrode means with an aperture comprising a metal disc and a hollow, tubular connection member connecting the metal disc to the wall of a reaction chamber, with the tubular connection member having a wall that surrounds a void, and the feature of a cover member mounted detachably on the second electrode means, the cover member having an aperture in alignment with the aperture of the second electrode means, such that an optical beam passes successively through a transparent window in the wall of the reaction chamber, the void and the aperture on the second electrode means, and further through the aperture on the cover member.

We turn now to the evidence of obviousness relied upon by the examiner.

The teaching of Roland (Fig. 1) is somewhat akin to the known apparatus described in the "BACKGROUND OF THE INVENTION" section of appellant's specification, but lacks the teaching

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of a transparent cover of quartz for the electrode with the slot therein.

The examiner looks to the Japanese reference and to the Bennett patent for a teaching of a tubular connection member connecting a slot electrode to the wall of a reaction chamber. However, it does not appear to us that glass tube 19 of the Japanese document (Fig. 3) or the unspecified structure connected to the perforated top electrode of Bennett would have been suggestive of a tubular connection member connecting a metal disc to a wall of a reaction chamber, as claimed.

As to the Levinstein '201 and Laporte references, the examiner relies thereon as being suggestive of the claimed detachably mounted cover member having an aperture. However, it readily appears to us that each of these reference addresses a coating not an apertured cover for detachable mounting on an electrode.

Based upon our assessment of the evidence of obviousness, it is evident to us that the teachings therein would not have been suggestive of the particularly claimed dry etching apparatus. As we see it, only by relying upon hindsight and appellant's own disclosure would one having ordinary skill in

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the art have been able to derive the claimed invention from the applied prior art. It is for this reason that the rejection on appeal cannot be sustained.<sup>6</sup>

The decision of the examiner is reversed.

REVERSED

IAN A. CALVERT	)	
Administrative Patent Judge	)	
	)	
	)	
	)	
	)	BOARD OF PATENT
IRWIN CHARLES COHEN	)	APPEALS
Administrative Patent Judge	)	AND
	)	INTERFERENCES
	)	
	)	
	)	
JOHN F. GONZALES	)	
Administrative Patent Judge	)	

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<sup>6</sup> Since we have concluded that the evidence of obviousness would not have been suggestive of the claimed invention, we need not focus upon the declaration of Mr. Takashi IWAI (main brief, "APPENDIX 3").

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COHEN

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APPLICATION NO. 08/152,089

APJ COHEN

APJ GONZALES

APJ CALVERT

DECISION: **REVERSED**

Prepared By: JoAnne

**DRAFT TYPED:** 29 Jan 01

**FINAL TYPED:**