

The opinion in support of the decision being entered today was not written for publication in a law journal and is not binding precedent of the Board.

Paper No. 27

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

---

Ex parte KEVIN G. DONOHOE, MIRZAFER ABATCHEV  
and ROBERT VELTROP

---

Appeal No. 2003-0642  
Application No. 09/382,584

---

HEARD: August 21, 2003

---

Before KIMLIN, JEFFREY T. SMITH and POTEATE, Administrative Patent Judges.

KIMLIN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1-35, 75 and 76. Claims 64-74, the other claims remaining in the present application, stand withdrawn from consideration. Claim 1 is illustrative:

1. A method for selectively etching an opening in a layer of material over a substrate, said method comprising:

defining an etching pattern on said layer of material;

Appeal No. 2003-0642  
Application No. 09/382,584

placing said substrate containing said layer of material with said defined etching pattern into a reactive chamber;

introducing an etching gas into said chamber;

providing a power to said substrate to induce an etching plasma in said gas which etches said opening in said layer of material; and

changing the operating parameters of said reactive chamber during etching of the opening in said layer of material, such that material is deposited at a first position of said opening which has a first aspect ratio while a second position of said opening having a second aspect ratio is continuously etched, wherein said first aspect ratio is different from said second aspect ratio.

The examiner relies upon the following references as evidence of obviousness:

Nulty et al. (Nulty)	5,468,342	Nov. 21, 1995
Hashemi et al. (Hashemi)	5,478,437	Dec. 26, 1995

Appealed claims 1-35, 75 and 76 stand rejected under 35 U.S.C. § 112, first paragraph, enablement requirement. Claims 75 and 76 stand rejected under 35 U.S.C. § 112, first paragraph, description requirement. In addition, claims 1-35, 75 and 76 stand rejected under 35 U.S.C. § 103 as being unpatentable over Nulty in view of Hashemi.

We have thoroughly reviewed the respective positions advanced by appellants and the examiner. In so doing, we find that the examiner's rejections under § 112, first paragraph, and

Appeal No. 2003-0642  
Application No. 09/382,584

§ 103 are not well-founded. Accordingly, we will not sustain the examiner's rejections.

We consider first the examiner's rejection under 35 U.S.C. § 112, first paragraph, enablement requirement. According to the examiner, the disclosed process parameters "do not reasonably provide enablement for one skilled in the art to perform the same function and effect" (page 4 of Answer, first paragraph). However, the examiner has not addressed appellants' citation of Figures 2 and 3 of the instant specification which provide several examples of operating parameters that allow for an attainment of the claimed process. In our view, the examiner has not satisfied his burden of establishing, by compelling reasoning or objective evidence, that one of ordinary skill in the art would be unable to practice the claimed invention without undue experimentation. In re Strahilevitz, 668 F.2d 1229, 1232, 212 USPQ 561, 563 (CCPA 1982); In re Marzocchi, 439 F.2d 220, 223, 169 USPQ 367, 369 (CCPA 1971).

Regarding the examiner's rejection of claims 75 and 76 under the description requirement of § 112, first paragraph, it is the examiner's position that the claim language "a time-modulated plasma-inducing voltage" is new matter. However, appellants' principal and reply briefs provide several instances where the

Appeal No. 2003-0642  
Application No. 09/382,584

specification provides support for the rejected claim language, but the examiner has not elaborated on why the referenced portions of the specification fail to provide descriptive support for the claim language. In our view, the specification provides ample support for the claimed concept of time-modulating the voltage during the induction of plasma.

We will also not sustain the examiner's rejection of the appealed claims under § 103 over the collective teachings of Nulty and Hashemi. In essence, we find that the arguments presented by appellants in their principal and reply briefs have not been adequately refuted by the examiner. For instance, the examiner has pointed to no disclosure in either reference of changing the operating parameters of the reaction chamber such that deposition occurs at a first position in an opening while etching continuously occurs at a second position of the opening. As for the examiner's reliance on Hashemi's disclosure at column 2, lines 52-64, we concur with appellants that "Hashemi is based on applying the same high voltage to different materials, which react differently with high energy plasmas" (page 12 of principal brief, last paragraph). Indeed, Hashemi discloses that the same cathode DC biases may be used to deposit hydrogenated carbon films selectively on layers of aluminum (paragraph

Appeal No. 2003-0642  
Application No. 09/382,584

bridging columns 3 and 4). Again, the examiner has cited no disclosures in the references for changing the operating parameters, such as the DC bias voltage, to effect a simultaneous etching and deposition, let alone in the same opening. The examiner's reliance on inherency of the modified Nulty process at page 8 of the Answer is without factual support. It is well settled that inherency must be based upon inevitability, not possibility.

In conclusion, based on the foregoing, the examiner's decision rejecting the appealed claims is reversed.

REVERSED

EDWARD C. KIMLIN	)	
Administrative Patent Judge	)	
	)	
	)	
	)	
	)	
JEFFREY T. SMITH	)	BOARD OF PATENT
Administrative Patent Judge	)	APPEALS AND
	)	INTERFERENCES
	)	
	)	
	)	
LINDA R. POTEATE	)	
Administrative Patent Judge	)	

ECK:clm

Appeal No. 2003-0642  
Application No. 09/382,584

Dickstein, Shapiro, Morin & Oshinsky LLP  
2101 L St., N.W.  
Washington, DC 20037-1526