

Filed on behalf of Godo Kaisha IP Bridge 1

By: Michael J. Fink (mfink@gbpatent.com)
Greenblum & Bernstein, P.L.C.
1950 Roland Clarke Place
Reston, Virginia 20191
Tel: (703) 716-1191
Fax: (703) 716-1180

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY LIMITED,
and GLOBALFOUNDRIES U.S. INC.,

Petitioners,

v.

GODO KAISHA IP BRIDGE 1,
Patent Owner.

Case Nos. IPR2016-01249 and IPR2016-01264¹
U.S. Patent No. 6,538,324

**PATENT OWNER'S REPLY
TO PETITIONER'S OPPOSITION TO PATENT OWNER'S
CONTINGENT MOTION TO AMEND FOR *INTER PARTES*
REVIEW OF UNITED STATES PATENT NO. 6,538,324**

Mail Stop PATENT BOARD, PTAB
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

¹ GlobalFoundries U.S. Inc.'s motions for joinder in Cases IPR2017-00919,-00920 were granted.

TABLE OF CONTENTS

	<u>Page</u>
I. THE PATENTS CITED BY PETITIONER ARE NOT MATERIAL.....	1
A. None Of The 7 References (Exs. 1025-1031) Is Material.....	2
1. UK Patent 2,298,657 is not material and merely cumulative	2
2. U.S. Patent No. 5,780,908 is not material and merely cumulative	3
3. U.S. Patent No. 5,869,902 is not material and merely cumulative	4
4. U.S. Patent No. 5,882,399 is not material and merely cumulative	4
5. U.S. Patent No. 6,057,237 is not material	5
6. U.S. Patent No. 6,136,682 is not material	6
7. U.S. Patent No. 6,242,804 is not material and merely cumulative	6
B. Exhibits 1025-1031 Are Not Discussed In The Expert Report In The Related Litigation Or Discussed By Petitioner’s Expert Here	6
II. THE SUBSTITUTE CLAIMS ARE PATENTABLE	7
A. The Substitute Claims Are Patentable Over <i>Zhang</i> and <i>Ding</i>	7
B. The Substitute Claims Are Patentable Over <i>Zhang</i> , <i>Ding</i> and <i>Nogami</i>	8
C. <i>Chiang 2</i> Does Not Overcome The Deficiencies of <i>Ding</i> , <i>Zhang</i> And <i>Nogami</i>	10
D. Substitute Claim 13 Has Adequate Written Support.....	12
III. CONCLUSION	12

TABLE OF AUTHORITIES

Page(s)

Cases

Shinn Fu Company of America, Inc. et al. v. The Tire Hanger Corporation,
IPR2015-00208, Paper 24, (April 22, 2016)..... 1

Patent Owner submits this Reply To Petitioner's Opposition To Patent Owner's Contingent Motion to Amend ("Reply"). Patent Owner has met its burden, procedurally and substantively, of establishing that Substitute Claims 11-13 are novel, non-obvious, and supported by the '324 patent's written description.

I. THE PATENTS CITED BY PETITIONER ARE NOT MATERIAL

In the Motion To Amend, Patent Owner discussed 28 references, including references not cited in the Petition. Ex.2037, ¶¶13, 83a-y. Petitioner asserts that Patent Owner did not discuss 7 of the 46 references identified in Ex.1037, *i.e.*, Exhibits 1025-1031. Exhibits 1025-1031 are not material and, at most, cumulative to the prior art of record.

There is no requirement that a patent owner seeking to amend its claims in an IPR must analyze immaterial and cumulative references, particularly where, as here, there are many different permutations. *See Shinn Fu Company of America, Inc. et al. v. The Tire Hanger Corporation*, IPR2015-00208, Decision, (April 22, 2016), p.20. Given the cumulative nature of the references and numerous possible permutations, Patent Owner complied with its duty of candor. Nevertheless, the deficiencies of Exhibits 1025-1031 are discussed herein.

A. None Of The 7 References (Exs. 1025-1031) Is Material

1. UK Patent 2,298,657 is not material and merely cumulative

UK 2,298,657 (“*Cho*”)(Ex.1025) is the only one of the 7 references substantively discussed by Petitioner (Opp., pp.2-4). Thus, Petitioner likely considers *Cho* to be most relevant, even though it is not substantively discussed in the expert’s declaration. Ex.1038.

Cho is cumulative to JP H8-250596A (“*JP ‘596’*”)(Exs. 2016, 2017). *Cho* and *JP ‘596* claim priority to KR 1995-4447, and the allegedly relevant portion of *Cho*’s disclosure is the same in *JP ‘596*. *Cho* and *JP ‘596* disclose a process of CVD forming layer 3 of Ti and layer 4 of amorphous TiN. Layer 4 is annealed to form layers 5-7, where layer 5 is amorphous titanium nitride, layer 6 is crystalline titanium nitride, and layer 7 is crystalline nitrogen-rich titanium nitride. Ex.1025, p.9 of 13; Ex.2017, p.5 of 9. *Cho* and *JP ‘596* disclose that layer 4 (amorphous) has a high resistance, which is decreased by phase transitioning layer 4 to the three-layered titanium nitride (layers 5,6,7) each having different properties. *Id.* Thus, *Cho* and *JP ‘596* disclose a specifically configured diffusion barrier including titanium layer 3 with annealed layers 5,6,7 formed by a specialized CVD/annealing process forming a specifically configured diffusion barrier. There is no disclosure of the relative nitrogen content in layers 5,6,7, however, layer 7 is

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.