

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Taiwan Semiconductor Manufacturing Company, Ltd.

Petitioner

v.

Godo Kaisha IP Bridge 1

Patent Owner

Patent No. 7,126,174

Filing Date: November 24, 2004

Issue Date: October 24, 2006

Title: SEMICONDUCTOR DEVICE AND METHOD OF MANUFACTURING
THE SAME

Inter Partes Review No. IPR2016-01247

**CORRECTED DECLARATION OF DR. SANJAY KUMAR BANERJEE,
PH.D. IN SUPPORT OF PETITION FOR *INTER PARTES* REVIEW OF
UNITED STATES PATENT NO. 7,126,174**

TABLE OF CONTENTS

I. INTRODUCTION 1

II. SUMMARY OF OPINIONS 2

III. BACKGROUND AND QUALIFICATIONS 2

 A. Background..... 2

 B. Previous Expert Witness Experience..... 6

 C. Compensation 6

IV. MATERIALS REVIEWED 7

V. LEGAL STANDARDS 9

 A. Anticipation10

 B. Obviousness.....11

VI. TECHNOLOGICAL BACKGROUND15

 A. Integrated Circuits15

 B. Isolation Structures18

 1. LOCOS.....19

 2. Shallow Trench Isolation20

 C. Insulating Sidewalls22

VII. THE '174 PATENT25

 A. Disclosed “Conventional” Devices25

 B. Representative Embodiment27

C.	Japanese Application No. 7-192181 Does not Disclose All the Features of the Challenged Claims.....	27
VIII.	LEVEL OF ORDINARY SKILL.....	30
IX.	ANALYSIS.....	31
A.	<i>Lowrey</i> (U.S. Patent No. 5,021,353)	31
B.	<i>Noble</i> (U.S. Patent No. 5,539,229).....	32
C.	<i>Ogawa</i> (U.S. Patent No. 4,506,434).....	33
D.	The combined teachings of <i>Lowrey</i> and <i>Noble</i>	35
1.	Claim 1 is obvious over <i>Lowrey</i> and <i>Noble</i>	43
2.	Claim 4 is obvious over <i>Lowrey</i> and <i>Noble</i>	57
3.	Claim 5 is obvious over <i>Lowrey</i> and <i>Noble</i>	59
4.	Claim 8 is obvious over <i>Lowrey</i> and <i>Noble</i>	61
5.	Claim 9 is obvious over <i>Lowrey</i> and <i>Noble</i>	63
6.	Claim 10 is obvious over <i>Lowrey</i> and <i>Noble</i>	66
7.	Claim 11 is obvious over <i>Lowrey</i> and <i>Noble</i>	69
8.	Claim 12 is obvious over <i>Lowrey</i> and <i>Noble</i>	70
9.	Claim 14 is obvious over <i>Lowrey</i> and <i>Noble</i>	72
10.	Claim 16 is obvious over <i>Lowrey</i> and <i>Noble</i>	73
E.	The combined teachings of <i>Lowrey</i> and <i>Ogawa</i>	76
1.	Claim 1 is obvious over <i>Lowrey</i> and <i>Ogawa</i>	82
2.	Claim 4 is obvious over <i>Lowrey</i> and <i>Ogawa</i>	85
3.	Claim 5 is obvious over <i>Lowrey</i> and <i>Ogawa</i>	86
4.	Claim 8 is obvious over <i>Lowrey</i> and <i>Ogawa</i>	87

5.	Claim 9 is obvious over <i>Lowrey</i> and <i>Ogawa</i>	87
6.	Claim 10 is obvious over <i>Lowrey</i> and <i>Ogawa</i>	88
7.	Claim 11 is obvious over <i>Lowrey</i> and <i>Ogawa</i>	89
8.	Claim 12 is obvious over <i>Lowrey</i> and <i>Ogawa</i>	90
9.	Claim 14 is obvious over <i>Lowrey</i> and <i>Ogawa</i>	91
10.	Claim 16 is obvious over <i>Lowrey</i> and <i>Ogawa</i>	91
X.	CONCLUSION	92

I, Dr. Sanjay Kumar Banerjee, Ph.D., declare as follows:

I. Introduction

1. My name is Dr. Sanjay Kumar Banerjee. I have been asked to submit this declaration on behalf of Taiwan Semiconductor Manufacturing Company, Ltd. (“TSMC” or “Petitioner”) in connection with a petition for *inter partes* review of U.S. Patent No. 7,126,174 (“the ’174 patent”), which I have been told is being submitted to the Patent Trial and Appeal Board of the United States Patent and Trademark Office by TSMC.

2. I have been retained as a technical expert by TSMC to study and provide my opinions on the technology claimed in, and the patentability or non-patentability of, claims 1, 4, 5, 8–12, 14, and 16 in the ’174 patent (“the Challenged Claims”).

3. I understand the ’174 patent is related to U.S. Patent Nos. 6,967,409 (the ’409 patent), 6,709,950 (the ’950 patent), and 6,281,562 (the ’562 patent) and also claims the benefit of priority to two Japanese applications, JP 7-192181, which was filed on July 27, 1995, and JP 7-330112, which was filed on December 19, 1995.

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.