

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner,

v.

OMNI MEDSCI, INC.,
Patent Owner.

Patent No. 9,651,533

IPR2019-00916

**DECLARATION OF BRIAN ANTHONY, PH. D. REGARDING U.S.
PATENT NO. 9,651,533**

Petitioner Apple Inc.

Ex. 1003 p. i

TABLE OF CONTENTS

I.	INTRODUCTION	1
A.	Engagement	1
B.	Background and Qualifications	1
C.	Compensation	5
D.	Information Considered.....	6
II.	LEGAL STANDARDS FOR PATENTABILITY	6
A.	Anticipation	8
B.	Obviousness.....	9
III.	BACKGROUND INFORMATION ABOUT THE '533 PATENT.....	11
A.	Effective Filing Date of the '533 Patent	11
B.	The Prosecution History of the '533 Patent	12
C.	Technical Field	13
D.	Level of Ordinary Skill in the Art	13
IV.	TECHNICAL BACKGROUND.....	14
A.	Photoplethysmography	14
B.	Industry Trends.....	21
V.	ANALYSIS OF THE '533 PATENT	29
A.	Overview of the '533 Patent.....	29
B.	Construction of Terms Used in the '533 Patent Claims.....	30
VI.	IDENTIFICATION OF THE PRIOR ART.....	34
VII.	ANALYSIS OF THE PRIOR ART AND '533 CLAIMS	34
A.	Lisogurski	34
1.	Overview of Lisogurski	34
2.	Overview of Carlson	37
3.	A Person of Ordinary Skill in the Art Would Have Modified Lisogurski to Incorporate Elements Shown in Carlson	38

Petitioner Apple Inc.

Ex. 1003 p. ii

4. Lisogurski and Carlson Describe the Elements of Claim 13 of the '533 Patent	41
a) Preamble	42
b) “a wearable measurement device...”	43
c) “the light source configured to increase signal-to-noise ratio” 45	
d) “the wearable measurement device comprising a plurality of lenses configured to receive a portion of the output optical beam and to deliver an analysis output beam to a sample” ...	59
e) “the wearable measurement device further comprising a receiver configured to receive and process at least a portion of the analysis output beam reflected or transmitted from the sample and to generate an output signal, wherein the wearable measurement device receiver is configured to be synchronized to pulses of the light source”	66
f) “a personal device...”	71
g) “a remote device...”	76
5. Lisogurski and Carlson Describe the Elements of Claim 5 of the '533 Patent	80
a) Preamble	82
b) “a light source comprising a plurality of semiconductor sources that are light emitting diodes configured to generate an output optical beam with one or more wavelengths, wherein at least a portion of the one or more optical wavelengths is a near-infrared wavelength between 700 nanometers and 2500 nanometers”	82
c) “the light source configured to increase signal-to-noise ratio....”	82
d) “an apparatus comprising a plurality of lenses configured to receive a portion of the output optical beam and to deliver an analysis output beam to a sample”	83
e) “a receiver configured to receive and process at least a portion of the analysis output beam reflected or transmitted from the sample and to generate an output signal, wherein the receiver	

	is configured to be synchronized to pulses of the light source”	
	83	
f)	“a personal device...”	83
g)	“a remote device configured to receive over the wireless transmission link an output status comprising the at least a portion of the processed output signal, to process the received output status to generate processed data and to store the processed data.”	84
6.	Claim 7	84
7.	Lisogurski and Carlson Describe the Elements of Claims 8 and 16	86
8.	Lisogurski and Carlson Describe the Elements of Claims 9 and 17	89
9.	Lisogurski and Carlson Describe the Elements of Claim 10	90
B.	Lisogurski, Carlson, and Mannheimer Render Obvious Claims 8-9 and 16-17	90
1.	Overview of Mannheimer	90
2.	A Person of Ordinary Skill in the Art Would Have Modified Lisogurski and Carlson to Incorporate Elements Shown in Mannheimer	91
3.	Claims 8 and 16	93
4.	Claims 9 and 17	95

I. INTRODUCTION**A. Engagement**

1. I have been retained by counsel for Apple Inc. as an expert witness in the above-captioned proceeding. I have been asked to provide an opinion regarding the patentability of certain claims in U.S. Patent No. 9,651,533 (“the ’533 Patent”) (Exhibit 1001). The face of the ’533 patent identifies Omni MedSci, Inc. (“Omni”) as the assignee. I have been asked to provide a discussion of the meaning of certain words and phrases in the claims of the ’533 patent, to provide a description of state of the art of the technology described in the ’533 patent, and to analyze various references that I understand are prior art to these patents.

B. Background and Qualifications

2. As indicated in my curriculum vitae (“CV”), Ex.1053, I am currently a Principal Research Scientist at the Massachusetts Institute of Technology (“MIT”). My CV includes additional information about my professional history and contains further details on my experience, publications, patents, and other qualifications to render an expert opinion. Below, I highlight some of my experience that is relevant to the technology of the patent at issue.

3. I earned a Bachelor of Science in Engineering from Carnegie Mellon University in 1994 and a Master’s degree in Engineering from MIT in 1998. My thesis topic related to anisotropic wave guides and acoustic non-destructive testing.

Petitioner Apple Inc.

Ex. 1003, p. 1

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.