

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.
Petitioner,

v.

OMNI MEDSCI, INC.,
Patent Owner.

Case IPR2021-00453

Petitioner's Reply

Table of Contents

I.	Introduction.....	1
II.	Lisogurski Alone Discloses a Device Configured to Increase SNR by Increasing an LED Pulse Rate.....	3
	A. Lisogurski Can Increase LED Firing Rate which Increases SNR..	3
	B. Cardiac Cycle Modulation Increases SNR by Increasing the LED Pulse Rate	6
III.	Lisogurski and Carlson Teach a System “Configured to Increase the Signal-to-Noise Ratio by... Increasing a [LED] Pulse Rate”	9
	A. Carlson Teaches Increasing LED Pulse Rate Can Increase SNR	10
	B. Lisogurski and Carlson Together Teach a Device that Increases an LED Pulse Rate for the Purpose of Increasing SNR	12
	C. Configuring Lisogurski to Change LED Firing Rate in Response to Noise Is Consistent with Lisogurski’s Teachings.....	14
IV.	<u>Ground 2</u>: Claims 1-4, 7-12, and 15-22 Are Obvious from Lisogurski, Carlson, and Tran.....	17
	A. A Skilled Person Would Have Been Motivated to Combine Lisogurski, Carlson, and Tran	18
	B. Construction of the “Detect” and “Identify” Terms in Claims 3, 8, and 16.....	19
	C. Lisogurski, Carlson, and Tran Teach the “detect” and “identify” Elements in Claims 3, 8, and 16	22
V.	<u>Ground 3</u>: Lisogurski, Carlson, Tran, and Isaacson Render Claims 5 and 13 Obvious.....	25
VI.	<u>Ground 4</u>: Lisogurski, Carlson, Tran, Isaacson, and Valencell-093 Render Claims 6, 14, and 23 Obvious.....	25
VII.	Conclusion	26

TABLE OF AUTHORITIES

Cases	Page(s)
<i>In re Keller</i> 642 F.2d 413 (Fed. Cir. 1981)	13
<i>MCM Portfolio LLC v. Hewlett-Packard Co.</i> , 812 F.3d 1284 (Fed. Cir. 2015)	16
<i>In re Merck & Co., Inc.</i> , 800 F.2d 1091 (Fed. Cir. 1986)	12
<i>ParkerVision, Inc. v. Qualcomm Inc.</i> , 903 F.3d 1354 (Fed. Cir. 2018)	8
<i>Thorner v. Sony Comp. Ent. Am.</i> , 669 F.3d 1362 (Fed. Cir. 2012)	22

I. Introduction

The Board should again find that Lisogurski and Carlson make obvious a device configured to “*increase the signal-to-noise ratio... by increasing a pulse rate*” of a light emitting diode (LED) as it did in IPR2019-00916 and IPR2020-00175 (the “prior proceedings”) involving parent patents. That is the principle limitation that Omni MedSci (“Omni”) contends renders the claims nonobvious. In its Response, Omni largely rehashes its arguments from the prior proceedings, but nothing in this record warrants changing the Board’s prior obviousness conclusions.

In its Response, Omni again embraces the central assertion of its prior arguments—that Lisogurski’s cardiac cycle modulation (“CCM”) does not increase an LED pulse rate to increase signal-to-noise ratio (“SNR”), and therefore, cannot meet the claim. Not only does the evidence show otherwise, but Omni previously admitted and the Board found that CCM increases the LED pulse rate and that by doing so CCM does increase SNR. *E.g.*, -916 FWD, 28-30; -175 FWD, 35-36.

Omni now argues that configuring Lisogurski to increase the LED pulse rate to avoid noise would change its principle of operation because doing so purportedly would break CCM which tracks the subject’s heart rate (0.5-3 Hz). But Lisogurski *explicitly teaches* changing the LED pulse rate when using *other* modulation types, including drive cycle modulation (“DCM”), which would not

affect CCM's "principle of operation." Ex.1011, 35:10-30. Likewise, Lisogurski teaches *simultaneously* using both CCM and DCM, which will cause the LED firing rate to be raised to 1,000 Hz during CCM. Ex.1011, 25:58-65, 37:18-22, 6:31. Consequently, increasing the LED pulse rate (*e.g.*, by turning on DCM at 1,000 Hz) is consistent with Lisogurski, and does not change its principle of operation. Ex.1003, ¶166. And given that the claims do not require any minimum increase in LED pulse rate or SNR, Omni's arguments are, at bottom, irrelevant.

Disregarding the Board's findings in the prior proceedings, Omni also argues that Carlson does not suggest configuring Lisogurski's system to increase an LED pulse rate to increase SNR. -916 FWD, 32-34; -175 FWD, 41-42. But Carlson specifically teaches that SNR can be improved by increasing the LED pulse rate to dynamically offset noise from ambient light, which as Omni's expert Dr. MacFarlane admitted, generally increases SNR. Ex.1060, 37:17-22.

Next, Omni argues that there is no rationale to combine the references in Grounds 2 to 4. But even a cursory review of the Petition shows that Apple set forth robust rationales for combining them. *E.g.*, Pet., 10-14, 59-63.

Finally, Omni advances erroneous constructions for two terms in dependent claims that are ultimately irrelevant because the art meets Omni's constructions.

The record of evidence establishes that the challenged claims are obvious, and the Board should find the challenged '484 claims unpatentable.

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