IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Halliburton Energy Services, Inc.,
Petitioner

v.

The United States of America
represented by the Secretary of
the Navy,
Patent Owner

U.S. Patent No. 7,271,884

Inter Partes Review Case No. IPR2017-02107

PATENT OWNER PRELIMINARY RESPONSE

TABLE OF CONTENTS

I. Introduction 1

II. Summary of Petitioner's Bases for Requesting Institution of IPR: 4

III. Patent Owner's and Licensee's Preliminary Comments Regarding Petitioner's Bases for Requesting Institution of IPR 4

IV. Discussion 6

1. Petitioner's Proposed Construction for "Light Source" Is Incorrect and Renders the Petition Insufficient 6

2. Everard Fails to Provide an Enabling Disclosure of the Claimed Invention 8

3. Kersey Teaches Away And Does Not Provide An Enabling Disclosure 11

V. Conclusion 14

I. Introduction

Patent Owner, The United States of America represented by the Secretary of the Navy, ("Patent Owner") and licensee Adelos, Inc. ("Licensee") (a Bayh-Dole Licensee, *see* 35 U.S.C. § 207) represented by Lane Powell PC, respectfully submit this Preliminary Response in accordance with 35 U.S.C. § 313 and 37 C.F.R. § 42.107. This Response responds to the Petition for inter partes review (the "Petition") filed by Halliburton Energy Services, Inc. ("Petitioner") regarding claims 1-3, 5-7, 10-16, and 18-32 of U.S. Patent No. 7,271,884 (the "'884 Patent"). The Petition's grounds argue that certain claims of the '884 Patent are rendered obvious by UK Patent Application GB 2 190 186 to Everard ("Everard") or US Patent No. 6,285,806 to Kersey ("Kersey").

The '884 Patent is a pioneering patent to a sensor that uses the innate properties of natural optical fiber to sense lightwave signals stemming at least in part from the incidence of external physical signals such as acoustic pressure waves on the natural optical fiber. The claimed invention describes a time-domain reflectometer that includes signal processing components that take advantage of the "natural, or innate, properties of commercial grade optical fiber cables" of the fiber. *See, e.g.*, Ex. 1001 (the '884 Patent) at 2:50-56; Claim 1 (at 32:59-63). The inventive sensor's ability to use natural fiber is an advantage over acoustic sensors that required Bragg gratings to be irradiated into the optical fiber, resulting in fiber spans

costing hundreds of thousands of dollars. *See, e.g.*, '884 Patent at 1:49-60; 2:7-13. Instead of relying on fixed position fiber Bragg gratings, the invention allows for sensors to be established at a continuum of positions along the length of the natural fiber. *See, e.g.*, '884 Patent at claim 1 (at 32:59 to 33:5), claim 21 (at 36:12-15), claim 22 (at 36:39-44); 10:60 to 11:14; Fig. 2 (reproduced below).

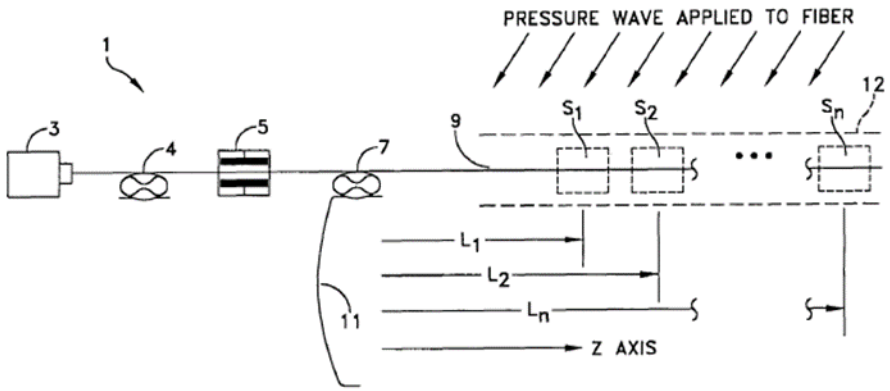

FIG. 2

In fact, the different structure and operation of sensors using natural commercial grade optical fibers, as opposed to fibers irradiated to form Bragg gratings, distinguishes the claimed invention from Petitioner's Kersey reference. And because Kersey represented the conventional understanding of those in the art at the time, Kersey actually reinforces the innovative nature of the '884 Patent. Moreover, the specificity provided by the disclosure and claims of the '884 Patent stand in stark contrast to the thin disclosure of Petitioner's Everard reference, which fails to provide an enabling description of the features claimed in the '884 Patent.

For the reasons detailed herein, it is respectfully submitted that the Board should decline to institute *inter partes* review of the requested claims of U.S. Patent No. 7,271,884. By statute, the Board must decide whether to institute review based on "the information presented in the petition" while also determining whether to "reject the petition or request because, the same or substantially the same prior art or arguments previously were presented to the Office." 35 U.S.C. §§ 314(a), 325(d). In particular, the Petition should be denied because it:

(1) Improperly relies on a proposed construction of the term "light source" that is inconsistent with the intrinsic evidence;

(2) Improperly relies on Everard despite its lack of an enabling disclosure of features expressly recited in the challenged claims of the '884 Patent; and

(3) Improperly relies on Kersey despite its express teaching away from the claimed invention and the lack of providing an enabling disclosure of features expressly recited in the challenged claims of the '884 Patent.

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