Trials@uspto.gov
571-272-7822

Paper 8
Entered: April 2, 2018

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

HALLIBURTON ENERGY SERVICES, INC.,
Petitioner,

v.

ADELOS, INC., and THE UNITED STATES OF AMERICA,
AS REPRESENTED BY THE DEPARTMENT OF THE NAVY,
Exclusive Licensee and Patent Owner.

Case IPR2017-02107
Patent 7,271,884 B2

Before SALLY C. MEDLEY, MATTHEW R. CLEMENTS, and AMBER L. HAGY, *Administrative Patent Judges*.

MEDLEY, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
35 U.S.C. § 314(a) and 37 C.F.R. § 42.108

I. INTRODUCTION

Halliburton Energy Services, Inc. ("Petitioner") filed a Petition for *inter partes* review of claims 1–3, 5–7, 10–16, and 18–22 of U.S. Patent No. 7,271,884 B2 (Ex. 1001, "the '884 patent"). Paper 1 ("Pet."). The United States of America, as Represented by the Department of the Navy and exclusive licensee Adelos, Inc. (herein collectively "Patent Owner"), filed a Preliminary Response. Paper 7 ("Prelim. Resp.").[1] Institution of an *inter partes* review is authorized by statute when "the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition." 35 U.S.C. § 314(a); *see* 37 C.F.R. § 42.108. Upon consideration of the Petition and Preliminary Response, we conclude the information presented does not show there is a reasonable likelihood that Petitioner would prevail in establishing the unpatentability of any of claims 1–3, 5–7, 10–16, and 18–22 of the '884 patent.

A. Related Matters

The parties state that the '884 patent is the subject of a court proceeding styled *Adelos, Inc. v. Halliburton Company et al.*, Case No. 9:16-cv-119-DLC (D. Mon.). Pet. 1; Paper 3, i.

---

[1] Adelos, Inc. is identified as "the exclusive licensee of the Government." Paper 3, i. The United States of America, as Represented by the Department of the Navy and exclusive licensee Adelos, Inc., jointly submit the Preliminary Response. Prelim. Resp. 1. Accordingly, we herein refer to the two collectively as Patent Owner.

B. The '884 Patent

The '884 patent is directed to time-domain reflectometers. Ex. 1001, 1:38. Specifically, the '884 patent "relates to such reflectometers which are a part of a photonic system application in which the object of the reflectometry is a span of fiber which has an interrogation signal launch end and a remote end." *Id*. at 1:39–43. Figure 3 is reproduced below.

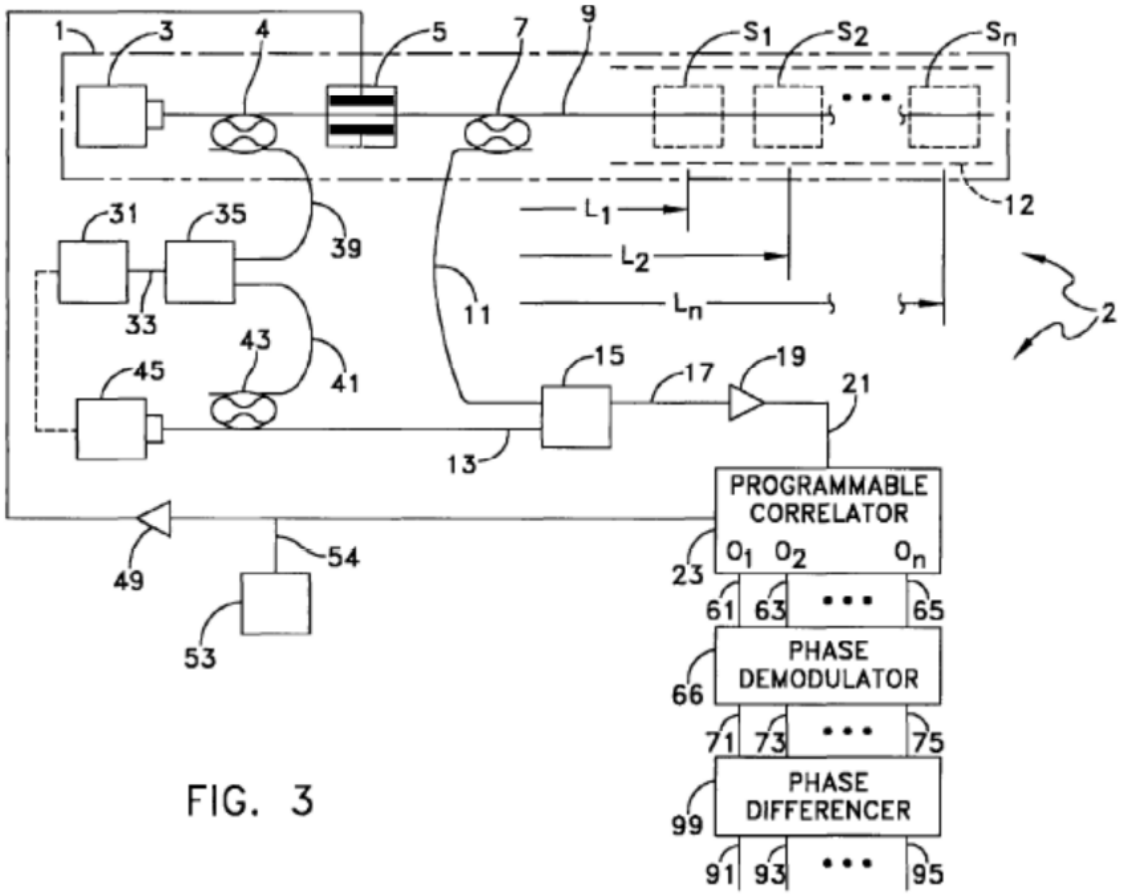

FIG. 3

Figure 3 of the '884 patent shows a block diagram of a time-domain reflectometer system.

Figure 3 shows a transmitter laser 3 connected to coupler or beamsplitter 4, which in turn is connected to optical modulator 5. *Id*. at 14:43–49. Optical modulator 5 is connected to optical coupler, beamsplitter or circulator 7, which in turn is connected to optical fiber 9. *Id*. at 14:49–61.

Master correlation code generator 53 is connected to modulator 5 by amplifier 49. *Id*. at 14:51–52.

The propagation of the signal in optical fiber 9 "causes a back-propagating composite optical signal, which is the linear summation, or integration spatially, of all of the individual, continuous, or continuum of back-reflections along the span of the optical fiber." *Id*. at 15:10–13. Optical pathway 11 is connected to optical coupler, beamsplitter, or circulator 7 to receive backscattered light from optical fiber 9 and relay it to heterodyne optical receiver 15. *Id*. at 15:66–16:3, 20:16–20. Optical receiver 15 receives an input from local oscillator laser 45. *Id*. at 17:52–63. Transmitter laser 3 and local oscillator laser 45 are also connected to receiver 35 through optical couplers 4 and 43 and optical pathways 39 and 41. *Id*. at 14:42–47, 17:55–59. Optical receiver 35 is connected back to local oscillator laser 45 through phase locking circuity 31. *Id*. at 18:1–15. Correlator system 23 receives RF signal 21 and an input from correlation code generator 53. *Id*. at 19:48–50, 20:4–6. Correlator system 23 is connected to phase demodulation system 66 which in turn is connected to phase differencer 99. *Id*. at 20:20–27, 22:43–47. Phase demodulation system 66 is comprised of a plurality of phase demodulators 81, 83, and 85. *Id*. at 24:61–64, Fig. 7.

C. Illustrative Claim

Petitioner challenges claims 1–3, 5–7, 10–16, and 18–22 of the '884 patent. Claims 1, 21, and 22 are independent claims. Claim 22, reproduced below, is illustrative of the claimed subject matter:

> 22. Signal sensing apparatus for sensing input signals at an array of a plurality of sensing stations along an optical fiber span, wherein at respective sensing stations of the array the

apparatus senses input signals of a type having the property of inducing light path changes within at regions of the span influenced by such signals, said apparatus comprising:

an optical wave network comprising a transmitter laser, and a lightwave directional coupler, said network being operative to illuminate an optical fiber span with a CW optical signal and to retrieve portions of the illumination back-propagating from a continuum of locations along the fiber span;

a modulator operative to modulate the CW optical signal in accordance with a reiterative autocorrelable form of modulation code;

a heterodyner which receives said retrieved back-propagated portions of illumination and derives therefrom a radio frequency (r.f.) counterpart thereof; and

a subsystem which receives said r.f. counterpart of the retrieved back-propagated portions of said illumination and is operative to derive signals representation of the phases of input signals respectively influencing the sensing stations of said plurality of sensing stations, said subsystem including;

a corresponding plurality of autocorrelation detectors which respectively detect components of said r.f. counterpart of the retrieved portions of the illumination representative of the optical input signals influencing the corresponding sensing stations; and

a corresponding plurality of phase demodulators which receive respective corresponding detected components of the input signals, said demodulators being operative in phase locked synchronism with said CW optical signal.

Id. at 36:32–65.

DOCKET ALARM

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.