

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

PETROLEUM GEO-SERVICES INC.,
Petitioner,

v.

WESTERNGECO LLC,
Patent Owner.

Case IPR2014-00689
Patent 7,293,520 B2

Before BRYAN F. MOORE, SCOTT A. DANIELS, and
BEVERLY M. BUNTING, *Administrative Patent Judges*.

DANIELS, *Administrative Patent Judge*.

DECISION

Decision on Institution of *Inter Partes* Review
37 C.F.R. § 42.108

I. INTRODUCTION

A. Background

Petroleum Geo-Services (“Petitioner”) filed a Petition to institute an *inter partes* review of claims 1, 2, 6, 18, 19, and 23 of U.S. Patent No. 7,293,520 B2 (“the ’520 patent” Ex. 1001).¹ Paper 2 (“Pet.”). WesternGeco LLC, (“Patent Owner”) timely filed a Preliminary Response. Paper 26 (“Prelim. Resp.”).

We have authority to determine whether to institute an *inter partes* review under 35 U.S.C. § 314; 37 C.F.R. § 42.4(a). Upon consideration of the Petition and the Preliminary Response, we determine that Petitioner has established a reasonable likelihood of prevailing on the unpatentability of claims 1, 2, 18, and 19 challenged in the Petition. Accordingly, we institute an *inter partes* review for claims 1, 2, 18, and 19 of the ’520 patent.

B. Additional Proceedings

Petitioner states that related lawsuits involving the ’520 patent presently asserted against Petitioner are *WesternGeco LLC v. Petroleum Geo-Services, Inc. et al.*, 4:13-cv-03037, (the “PGS lawsuit”) in the Southern District of Texas and *WesternGeco LLC v. ION Geophysical Corp. et al.*, 4:09-cv-01827 (the “ION lawsuit”), also in the Southern District of Texas. Pet. 2.

Petitioner also has concurrently filed three additional petitions challenging the patentability of: (1) claims 1 and 15 of U.S. Patent No.

¹ The Petition was initially accorded the filing date of April 23, 2014. Paper 6. Following submission of an updated Mandatory Notice (Paper 16) on August 1, 2014, including additional real-parties-in-interest, we exercised our discretion under 37 C.F.R. § 42.5(c), and changed the accorded filing date of the Petition to August 5, 2014. Paper 22.

IPR2014-00689
Patent 7,293,520 B2

7,080,607 B2 (“the ’607 patent”)(IPR2014-00688); (2) claims 1 and 15 of U.S. Patent No. 7,162,967 B2 (“the ’967 patent”) (IPR2014-00687), and; (3) claim 14 of U.S. Patent No. 6,691,038 B2 (“the ’038 patent”) (IPR2014-00678).² , .

C. The ’520 Patent

The ’520 patent (Ex. 1001), titled “Control System for Positioning of a Marine Seismic Streamers,” generally relates to a method and apparatus for improving marine seismic survey techniques by more effectively controlling the movement and positioning of marine seismic streamers towed in an array behind a boat. Ex. 1001, col. 1, ll. 24–36. As illustrated in Figure 1 of the ’520 patent reproduced below, labeled Prior Art, a seismic source, for example, air gun 14, is towed by boat 10 producing acoustic signals, which are reflected off the earth below. *Id.* The reflected signals are received by hydrophones (no reference number) attached to streamers 12, and the signals “digitized and processed to build up a representation of the subsurface geology.” *Id.* at 36–41.

² The ’520, ’607, and ’967 patents each issued as continuations of application No. 09/787,723, filed July 2, 2001, now U.S. Patent No. 6,932,017, which was, in turn, a 35 U.S.C. § 371 national stage filing from Patent Cooperation Treaty application number PCT/IB99/01590, filed September 28, 1999, claiming foreign priority under 35 U.S.C. § 119 from Great Britain patent application number 9821277.3, filed October 1, 1998. *See* Ex. 1001, col. 1, ll. 7–16.

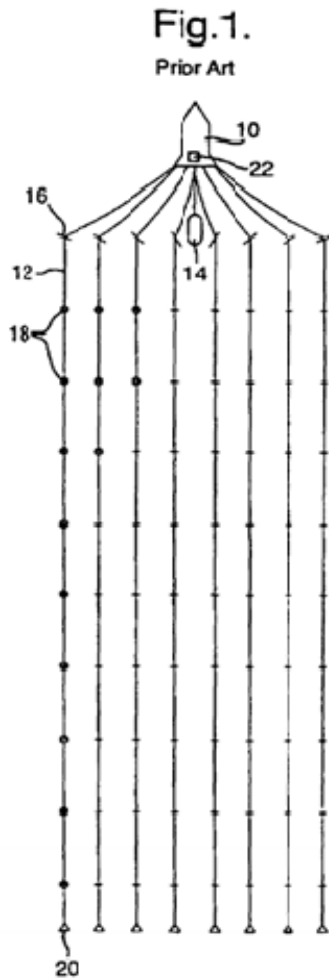


Figure 1 depicts an array of seismic streamers 12 towed behind the vessel.

In order to obtain accurate survey data, it is necessary to control the positioning of the streamers, both vertically in the water column, as well as horizontally against ocean currents and forces, which can cause the normally linear streamers to bend and undulate and, in some cases, become entangled with one another. *Id.* at col. 1, l. 42–col. 2, l. 25. As illustrated in Figure 1, each streamer is maintained in a generally linear arrangement behind the boat by deflector 16 which horizontally positions the end of each streamer

nearest the vessel. *Id.* at 43–45. Drag buoy 20 at the end of each streamer farthest from the vessel creates tension along the streamer to maintain the linear arrangement.

Additionally, to control the position and linear shape of the streamer, a plurality of streamer positioning devices, called “birds” 18, are attached along the length of each streamer. The birds are horizontally, and vertically steerable and control the shape and position of the streamer in both vertical (depth) and horizontal directions. *Id.* at col. 3, ll. 53–61. The birds’s job is usually to maintain the streamers in their linear and parallel arrangement, because, when the streamers are horizontally out of position, the efficiency of the seismic data collection is compromised. *Id.* at col. 2, ll. 14–17. The most important task of the birds, however, is to keep the streamers from tangling. *Id.* at col. 4, ll. 4–5.

The invention described in the ‘520 patent relies on global control system 22 located on, or near the vessel, to control the birds on each streamer and maintain the streamers in their particular linear and parallel arrangement. *Id.* at col. 3, ll. 62–66. The control system is provided with a model (desired) position representation of each streamer in the towed streamer array, and also receives (actual) position information from each of the birds. *Id.* at col. 4, ll. 21–23. The control system uses the desired and actual position of the birds to “regularly calculate updated desired vertical and horizontal forces the birds should impart on the seismic streamers 12 to move them from their actual positions to their desired positions.” *Id.* at col. 4, ll. 37–40.

The Specification explains that the control system has two primary modes, a feather angle mode, and a turn control mode. *Id.* at col. 10, ll. 27–

29. The feather angle mode is used to maintain the linear form of the streamer at an angle offset from the direction of towing, usually to account for ocean crosscurrents affecting the streamers. *Id.* at col. 10, ll. 29–37. The '520 patent explains “[o]nly when the crosscurrent velocity is very small will the feather angle be set to zero and the desired streamer positions be in precise alignment with the towing direction.” *Id.* at col. 10, ll. 34–36.

The turn control mode is used when the vessel is turning during a survey operation. *Id.* at col. 10, ll. 38–40. In a first part of the turn, birds 18 are instructed to “throw out” the streamer by generating a force in the opposite direction from the turn. *Id.* at col. 10, ll. 40–44. In a second part of the turn, the birds are directed back to the position defined by the feather angle mode. *Id.* The control system determines the first and second part of the turn according to data provided by the vessel navigation system. *Id.* at col. 10, ll. 50–53.

During inclement weather conditions the control system can also operate in streamer separation mode, important for keeping the streamers from tangling. *Id.* at col. 10, ll. 54–57. In this mode, the birds are directed to maintain the streamers a distance apart from one another, where

[t]he streamers 12 will typically be separated in depth and the outermost streamers will be positioned as far away from each other as possible. The inner streamers will then be regularly spaced between these outermost streamers, i.e. each bird 18 will receive desired horizontal forces 42 or desired horizontal position information that will direct the bird 18 to the midpoint position between its adjacent streamers.

Id. at col. 10, ll. 58–65. These different modes allow the vessel to operate more efficiently, turn faster and lower the incidents of tangling during

survey operations leading to a reduction in time and equipment costs of marine surveying. *Id.* at col. 10, ll. 44–46, col. 2, ll. 23–25.

D. Illustrative claims

Of the challenged claims, the independent claims are 1 and 18. Each of dependent claims 2 and 6 depend directly from claim 1. Each of dependent claims 19 and 23 depend directly from claim 18. Claims 1 and 18 illustrate the claimed subject matter and are reproduced below:

1. A method comprising:
 - (a) towing an array of streamers each having a plurality of streamer positioning devices there along contributing to steering the streamers;
 - (b) controlling the streamer positioning devices with a control system configured to operate in *one or more control modes selected from a feather angle mode, a turn control mode, and a streamer separation mode.*

Ex. 1001, col. 11, ll. 10–18 (emphasis added).

18. An apparatus comprising:
 - (a) an array of streamers each having a plurality of streamer positioning devices there along;
 - (b) a control system configured to use *a control mode selected from a feather angle mode, a turn control mode, a streamer separation mode, and two or more of these modes.*

Ex. 1001, col. 12, ll. 4–10 (emphasis added).

E. The Alleged Grounds of Unpatentability

Petitioner contends that the challenged claims are unpatentable on the following specific grounds.³

| Reference(s) | Basis | Claims challenged |
|---|-------|-------------------|
| Workman ⁴ | § 102 | 1 and 18 |
| Workman | § 103 | 1, 2, 18, and 19 |
| Hedberg ⁵ | § 102 | 1, 2, 18, and 19 |
| Hedberg | § 103 | 1, 2, 18, and 19 |
| '636 PCT ⁶ and '153 PCT ⁷ | § 103 | 1, 6, 18, and 23 |
| '636 PCT and Dolengowski ⁸ | § 103 | 1, 6, 18, and 23 |

II. CLAIM CONSTRUCTION

A. Legal Standard

We interpret claims of an unexpired patent using the “broadest reasonable construction in light of the specification of the patent in which [they] appear[.]” 37 C.F.R. § 42.100(b); *see also* Office Patent Trial

³ Petitioner supports its challenge with the Declarations of Dr. Brian Evans, Ph.D. (Ex. 1002)(“Evans Decl.”) and Dr. Jack H. Cole Ph.D. (Ex. 1003)(“Cole Decl.”). *See infra*.

⁴ Ex. 1004, U.S. Patent No. 5,790,472 (Aug. 4, 1998).

⁵ Ex. 1005, U.S. Patent No. 3,581,273 (May 25, 1971).

⁶ Ex. 1006, WO 98/28636 (July 2, 1998).

⁷ Ex. 1007, WO 84/03153 (Aug. 16, 1984).

⁸ Ex. 1008, U.S. Patent No. 4,890,568 (Jan. 2, 1990).

Practice Guide, 77 Fed. Reg. 48,756, 48,766 (Aug. 14, 2012). Claim terms are given their ordinary and customary meaning, as would be understood by a person of ordinary skill in the art at the time of the invention and in the context of the entire patent disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). If the specification “reveal[s] a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess[,] . . . the inventor’s lexicography governs.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1316 (Fed. Cir. 2005) (en banc) (citing *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002)). We apply this standard to the claims of the ’520 patent.

1. Streamer Positioning Device

Independent claims 1 and 18 include the limitation, “streamer positioning device[.]” Petitioner proposes that under the broadest reasonable interpretation, the “streamer positioning device” is “a device that controls the position of a streamer as it is towed (e.g., a ‘bird’).” Pet. 18.

Patent Owner opposes the proposed construction and argues that, in accordance with the plain meaning of the term, the broadest reasonable construction of “streamer positioning device” is “a device that controls at least the lateral position of a streamer as it is towed.” Prelim. Resp. 18.

On its face, claim 1 recites that the streamer positioning devices, as they are towed, “contribut[e] to steering the streamers.” We are not apprised by the claim language of any specific steering directions, controls, or constraints. Claim 1 further recites the limitation of “controlling the streamer positioning devices,” again without giving any specificity to the manner, trajectory, or direction in which the positioning device is controlled. The specification of the ’520 patent describes streamers 12 being maintained

in linear position by “a plurality of streamer positioning devices known as birds 18. Preferably[,] the birds 18 are both vertically and horizontally steerable.” Ex. 1001, col. 3, ll. 54–56. However, neither “horizontal,” i.e. lateral, nor “vertical” steering is recited in the claims. The claims also do not recite any specific types of “streamer positioning devices.” Indeed, besides birds, the specification states that the invention “may also be used in connection with streamer positioning devices that are characterized as ‘deflectors’ or steerable ‘tail buoys.’” *Id.* at col. 11, ll. 2–6.

To the extent that the specification of the ’520 patent discloses that “positioning” of the device may be accomplished by either horizontal or vertical steering, or both, of the device, or that the device may be a bird or other type of device, any interpretation including specific directional terms would read limitations improperly from the specification into the claims. Accordingly, for purposes of this Decision, the broadest reasonable interpretation of “streamer positioning device” is “a device that positions a streamer as it is towed.”

2. Control System

Independent claims 1 and 18 recite “a control system.” Petitioner does not explain sufficiently why the term “control system” requires an express construction on this record. No express construction of “control system” is needed for this Decision.

3. Array of Streamers

Patent Owner proposes that we construe the claim term “array of streamers,” as “more than one elongate cable-like structure which contains arrays of seismic sensors and associated electronic equipment along its length.” Prelim. Resp. 24.

Petitioner does not provide a construction for this term.

Claims 1 and 18 both plainly call for an “array of streamers,” and not merely “a streamer.” The ’520 patent initially describes “[a] marine seismic streamer” singularly, where a streamer includes “arrays of seismic sensors.” Ex. 1001, col. 1, ll. 28–30. The ’520 patent then discusses “a plurality of such streamers” towed behind a marine vessel. *Id.* at col. 1, ll. 33–35. Subsequently, the ’520 patent refers to this plurality of towed streamers as an “array” where the positioning devices are for “controlling the positions of marine seismic streamers in an array of such streamers being towed by a seismic survey vessel.” *Id.* at col. 3, ll. 3–6. The ’520 patent also explains that “[t]he outermost streamers 12 in the array could be 700 meters apart.” *Id.* at col. 3, ll. 38–39.

The plain meaning of an “array of streamers,” as recited in the claims and in the context of the specification, comports with the plain and ordinary understanding of “array,” meaning, a plurality, or, more than one. Accordingly, for purposes of this Decision we interpreted “an array of streamers” to mean “more than one streamer.”

4. *Feather Angle Mode*

Independent claims 1 and 18, as well as dependent claims 2 and 19, recite “a feather angle mode.” Petitioner argues that “feather angle mode” be construed as “[a] control mode that attempts *to keep* each streamer in a straight line offset from the towing direction by a certain feather angle.” Pet. 19–20 (emphasis added).

Patent Owner proposes that “feather angle mode” be interpreted as “a control mode that ‘attempts to *set and maintain* each streamer in a straight line offset from the towing direction by a certain feather angle.’” Prelim.

Resp. 25 (emphasis added). Patent Owner specifically argues that the '520 patent explains “that the streamer’s relative position is ‘input’ or ‘set’ as part of the ‘global control system.’” *Id.*

The only difference between Petitioner’s and Patent Owner’s constructions is set forth in italics above. The '520 patent describes that the feather angle mode attempts “to keep each streamer in a straight line offset from the towing direction by a certain feather angle.” Ex. 1001, col. 10, ll. 29–32. We understand no substantive difference between the plain meaning of the terms “to keep” or “to maintain,” leaving the question of whether the feather angle mode “set[s]” the streamer’s relative position, i.e. the feather angle.

The specification states that “[t]he feather angle could be input either manually, through use of a current meter, or through use of an estimated value based on the average horizontal bird forces.” Ex. 1001, col. 10, ll. 32–34. We understand from this that the input, or setting, of the feather angle would be input manually, or via some component of the global control system 22. It is clear that the feather angle mode *uses* “a certain feather angle,” as it is input, but for purposes of this Decision we are not persuaded that the feather angle mode, itself, actually inputs, or sets, the feather angle.

Accordingly, in the context of the specification on this record, the broadest reasonable interpretation of “feather angle mode” is “a control mode that attempts to keep each streamer in a straight line offset from the towing direction by a certain feather angle.”

5. *Turn Control Mode*

Independent claims 1 and 18, as well as dependent claims 6 and 23, recite “turn control mode.” Petitioner argues that “turn control mode” be

construed as “a control mode in which the streamer positioning devices first generate force in the opposite direction of the turn and then are directed back into position.” Pet. 21–22.

Patent Owner proposes that “turn control mode” be interpreted as “a control mode with at least two phases: a first part in which the streamer positioning device(s) generate a force in the opposite direction of a turn, and a second part directing each streamer positioning device to the position defined in the feather angle mode.” Prelim Resp. 27.

As we explain further below in Section II.A.7, because the list of alternative modes recited in independent claim 18, and by implication independent claim 1, constitutes a Markush group, the independent claims do not require both the turn control mode *and* the feather control mode, as Patent Owner urges us to read into this limitation. Consistent with our understanding, and reading “turn control mode” in the context of the specification, the broadest reasonable interpretation of “turn control mode” is “a control mode, in which during a turn, the streamer positioning devices generate force in the opposite direction of the turn and then are directed back into position.”

6. Streamer Separation Mode

Independent claims 1 and 18, as well as dependent claims 2 and 19, recite a “streamer separation mode.” Petitioner argues that the “streamer separation mode” is “a mode wherein the global control system attempts to direct the streamer positioning to maintain a minimum separation distance between adjacent streamers.” Pet. 23–24.

Patent Owner proposes that “streamer separation mode” be interpreted as “a control mode that attempts to set and maintain the spacing between

adjacent streamers.” Prelim. Resp. 28.

The ’520 patent states that the general purpose of the “streamer separation mode” is an “attempt[] to minimize the risk of entanglement of the streamers.” Ex. 1001, col. 10, ll. 56–57. This purpose of the streamer separation mode is also recited in dependent claims 13 and 30 as “attempting to minimize the risk of entanglement of the streamers.” The specification further explains that in the streamer separation mode the global control system wants to “maximize” the distance between streamers. *Id.* at 56–58. Also, that the streamers will be “separated in depth.” *Id.* at 58. Dependent claims 14 and 31 are specifically drawn to this limitation “maximiz[ing]” the distance between streamers.

We are not persuaded that the “streamer separation mode” should be limited to either a “minimum,” as argued by Petitioner, or a “maximum” separation as recited in the dependent claims. We also are not apprised of any evidence in the specification or claims that any specific distance between the streamers in the separation mode is “set and maintain[ed]” as Patent Owner urges. To the extent that dependent claims 14 and 31 recite an attempt to “maximize distance between adjacent streamers,” these claims do not recite that a particular value between streamers is “set and maintained.” The ’520 patent also does not discuss in the specification “set[ting]” or “maintain[ing]” any specific value. The specification explains only that in the streamer separation mode the outermost streamers are positioned as far from one another as possible, and the intermediate streamers “regularly spaced between these outermost streamers.” Ex. 1001, col. 10, l. 61.

Accordingly, for purposes of this Decision, the broadest reasonable interpretation which comports with the specification and the plain meaning

of “streamer separation mode,” is, “a mode to control separation, or spacing, between streamers.”

7. *A control system configured to use a control mode selected from a feather angle mode, a turn control mode, a streamer separation mode, and two or more of these modes*

Because this limitation is written as a Markush group, the prior art discloses the limitation if one alternative, i.e. a feather angle, a turn control mode, or a streamer mode, is in the prior art. *See Fresenius USA, Inc. v. Baxter Int’l, Inc.*, 582 F.3d 1288, 1298 (Fed. Cir. 2009).

III. ANALYSIS

A. Statutory Bar Under 35 U.S.C. § 315(b)

Patent Owner disputes that Petitioner timely filed its Petition for an *inter partes* review. Specifically, under 35 U.S.C. § 315(b), a party may not file a petition for *inter partes* review if the party had been served with a complaint alleging infringement more than one year previously. Patent Owner asserts that Petitioner was served with a complaint on March 14, 2011.

On June 12, 2009, Patent Owner filed, via the court’s electronic case filing procedure (“ECF”), a complaint initiating the ION lawsuit, alleging infringement of the ’520 patent against ION based on ION’s “DigiFIN” and other products. Prelim. Resp. 5. Patent Owner also filed a similar complaint against a company called Fugro, a customer of ION, which was consolidated with the ION lawsuit. *Id.* citing Ex. 2037. On December 8, 2009, remarking that Petitioner may have been involved in the design and testing of the ION

products, Patent owner provided Petitioner via email with a copy of the complaint against ION. *Id.* at 5–6, citing Ex. 2008.

Subsequently, Patent Owner subpoenaed Petitioner on January 22, 2010, to produce documents and evidence relating, *inter alia*, to Petitioner’s use and operation of ION’s DigiFIN product. *Id.* citing Ex. 2009. In response to the subpoena, Petitioner appeared in the ION lawsuit through its counsel, Heim Payne & Chorush. *Id.* citing Ex. 2011. On March 14, 2011, Patent Owner filed an amended complaint in the ION lawsuit via the court’s electronic filing system (“ECF”), naming ION and Fugro, but not Petitioner, and incorporating the original 2009 complaint against ION in its entirety. *Id.* (citing Ex. 2012). Patent Owner argues that because Petitioner’s counsel, as an ECF notice recipient in the ION lawsuit, received a copy of the amended complaint against Fugro and ION on March 14, 2011, Petitioner was therefore “served” in accordance with 35 U.S.C. § 315(b) the same day. Thus, it is Patent Owner’s position that because Petitioner was “served” with the complaint more than one year before filing, the Petition is time-barred.

The Board has dealt with similar arguments regarding the statutory interpretation of 35 U.S.C. § 315(b) before in *Motorola Mobility LLC v. Arnouse*, IPR2013-00010, (PTAB Jan. 30, 2013) (Paper 20) (the “*Motorola* decision”). For similar reasons set forth in the *Motorola* Decision, we do not adopt the statutory construction that mere receipt of a complaint, via email or even ECF, initiates the one-year time period. We specifically agree with the *Motorola* Panel’s review and interpretation of the legislative history and intent of 35 U.S.C. § 315(b) in that, “[w]e do not believe that the Congress intended to have the time period start before a petitioner is officially a defendant in a law suit.” *Id.* at 5.

Patent Owner specifically argues that the present proceeding differs from *Motorola* because in the ION lawsuit “Petitioner was served with process and formally appeared,” and was thus “brought under a court’s authority, by formal process’ *before* being served with the amended complaint.” Prelim. Resp. 8. (Emphasis added). Despite this factual difference from *Motorola*, Petitioner was not, and never has been, a party defendant in the ION lawsuit. Petitioner, in the ION lawsuit, was served under Fed. R. Civ. P. 45, with a third party subpoena, to produce documents and things relating to the ION lawsuit. *See* Ex. 2009. Although a person, or entity, may have been properly served with a subpoena, and fall under a court’s authority for purposes of producing appropriate documents and things not protected by a privilege or protection, Fed. R. Civ. P. 45(c)–(e) does not express, or imply that a person subject to the subpoena is a defendant to a lawsuit. Indeed, Fed. R. Civ. P. 45 specifically differentiates between a “person” served with the subpoena, and “a party” to the lawsuit. *See* Fed. R. Civ. P. 45 (d)(2)(B). (“A person commanded to produce documents or tangible things or to permit inspection may serve on the party or attorney designated in the subpoena a written objection to inspecting, copying, testing or sampling any or all of the materials.”) We are aware of no case law or precedent, nor has Patent Owner cited to any, indicating that a person served with a subpoena, and subject to the authority of the court in enforcing such subpoena under Fed. R. Civ. P. 45(e), provides sufficient legal process to make such person a defendant to a lawsuit.

Thus, Petitioner was not a defendant in the ION lawsuit. Concomitant with our colleagues *Motorola* Decision, we interpret 35 U.S.C. § 315(b) as requiring service upon a defendant to the lawsuit. Petitioner was not a

defendant, thus, they were never “served with a complaint” in the ION lawsuit, as required by 35 U.S.C. § 315(b).⁹

B. Real Parties-in-Interest Under 35 U.S.C. § 312(a)

(1) PGSAI

The statute governing *inter partes* review proceedings sets forth certain requirements for a petition for *inter partes* review, including that “the petition identif[y] *all* real parties in interest.” 35 U.S.C. § 312(a) (emphasis added); *see also* 37 C.F.R. § 42.8(b)(1) (requirement to identify real parties in interest in mandatory notices). The Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,764 (Aug. 14, 2012) (“Practice Guide”) explains that “[w]hether a party who is not a named participant in a given proceeding nonetheless constitutes a ‘real party-in-interest’ . . . to that proceeding is a highly fact-dependent question.” 77 Fed. Reg. 48,759. The Practice Guide further states that:

However, the spirit of that formulation as to IPR and PGR proceedings means that, at a general level, the ‘real party-in-interest’ is the party that desires review of the patent. Thus, the ‘real party-in-interest’ may be the petitioner itself, and/or it may be the party or parties *at whose* behest the petition has been filed.

Id. (emphasis added). The determination of whether a non-party is a real party-in-interest involves a consideration of control: “[a] common

⁹ Patent Owner’s argument that S.D. Texas L.R. 5-1 states that the ECF notice “constitutes service of the document on those registered as Filing Users,” is not persuasive as to the intent of Congress with respect to § 315(b). *See* 157 Cong. Rec. S5429 (daily ed. Sept. 8, 2011) (statement of Senator Kyl) (“it is important that the section 315(b) deadline afford defendants a reasonable opportunity to identify and understand the patent claims that are relevant to the litigation”).

consideration is whether the non-party exercised or could have exercised control over a party's participation in a proceeding." *Id.*

Patent Owner alleges that a company called PGS Americas, Inc., ("PGSAI") is a real party-in-interest to this proceeding because an in-house attorney for PGSAI, Kevin Hart, has been involved in the ION lawsuit, and "controlled the review, dissemination and discussion of the prior art that was presented in the Petition." Patent Owner argues that Kevin Hart retained trial counsel for Petitioner and PGSAS, and "acted as '[Petitioner's] in-house counsel.'" Prelim. Resp. 10. Patent Owner argues that Kevin Hart of PGSAI also controlled the negotiation of indemnity protections for PGSAS, with ION, for potential patent infringement related to DigiFIN. *Id.* citing Ex. 2022, 2023. Patent Owner further asserts that PGSAI controlled the payment of DigiFIN invoices to ION, as well as the repair and shipment of DigiFIN products for PGSAS. *Id.* citing Ex. 2019–21. Patent Owner's argument relies on the requirement that all real parties-in-interest be identified in the Petition, and concludes that "[b]ecause PGSAI's counsel is controlling [Petitioner's] interests in the validity and infringement of the '520 patent, PGSAI is an RPI." *Id.* at 11.

The *Practice Guide* provides guidance regarding factors to consider in determining whether a party is a real party-in-interest. Considerations may include whether a non-party exercises control over a Petitioner's participation in a proceeding. Other considerations may include whether a non-party, in conjunction with control, is funding the proceeding and directing the proceeding. 77 Fed. Reg. 48,759–60 (August 14, 2012).

Patent Owner provides insufficient evidence to support its speculative contention that any party other than Petitioner is, in fact, funding or

controlling Petitioner's involvement in this proceeding, or that the Petition was filed "at the behest" of any party other than Petitioner. We are not persuaded that the evidence of common in-house counsel between PGS AI and Petitioner shows that PGS AI funded, or directed Petitioner in connection with the filing of this Petition. While Kevin Hart may act on behalf of Petitioner at times, and PGS AI at other times, this employment association does not explain the corporate, or legal, relationship between PGS AI and Petitioner, or demonstrate that PGS AI has the ability to control the proceeding before the Board, nor is it evidence of corporate control between Petitioner and PGS AI. Discussions of potential remedies and indemnity protections by Mr. Hart on behalf of either entity, without specific evidence of corporate relationship, control, or contractual obligations of these entities, fail to prove that any entity is able to control the actions of another. Moreover, invoice payments by PGS AI for the DigiFIN product repair and development, at best, show that PGS AI, may be a corporate financial structure, not that any control was exercised, or funding provided by PGS AI in this *inter partes* review proceeding.

(2) *ION*

Patent Owner asserts that ION is a real party-in-interest because (a) ION and Petitioner have a mutual desire to invalidate the '520 patent and other WesternGeco patents, and because, in this regard, Petitioner claimed a "common interest privilege" over communications with ION; (b) ION expressed its desire to satisfy its product assurance pledge and fulfill its obligations to Petitioner by securing rights to the DigiFIN product, or replace it with a non-infringing product; and (c) because Petitioner invoked ION's indemnity obligations, notifying ION that Petitioner expected ION to

fulfill its obligations and provide a remedy should infringement be found in the district court. Prelim. Resp. 12–13 citing Ex’s. 2022, 2027.

The common interest privilege serves to protect confidential, or privileged, communications with third parties, which might otherwise be exceptions to the attorney-client privilege. There is nothing surreptitious about separate entities, as either third parties, or separate parties to a legal action, proclaiming shared interests to protect communications that are relevant to advance the entities interests possessing the common interest. *See In re Regents of Univ. of California*, 101 F.3d 1386, 1389 (Fed. Cir. 1996) “The protection of communications among clients and attorneys ‘allied in a common legal cause’ has long been recognized.”) (quoting *In re Grand Jury Subpoena Duces Tecum*, 406 F.Supp. 381, 386 (S.D.N.Y.1975)). The fact that Petitioner and ION have a common interest in invalidating the ’520 patent and other WesternGeco patents, and have collaborated together, and invoked a common interest privilege with respect to sharing potentially invalidating prior art references, does not persuade us that ION has the ability to control the instant Petition or is directing or funding the present proceeding.

The Board has issued decisions determining that a non-party entity is a real party-in-interest. *See Zoll Lifecor Corp. v. Philips Electronics North America Corp.*, IPR2013-00609, (PTAB Mar. 20, 2014) (Paper 15) (the “Zoll Decision”). In the *Zoll Decision*, the Board was persuaded that an unnamed party to the IPR, Zoll Medical, exercised consistent control over Zoll Lifecore for over 6 years, including control of the *inter partes* review. *Id.* at 11. Specific evidence of control included Zoll Lifecor’s acknowledgment that Zoll Medical controlled 100% of Zoll Lifecor and

approved Zoll Lifecor's corporate budget and plans. *Id.* Other evidence of control included the fact that common counsel for Zoll Medical and Zoll Lifecor, would not state affirmatively that counsel did not provide input into preparation of the IPR's. *Id.* at 11–12. Additional evidence showed that only Zoll Medical's management team attended court-ordered mediation in the underlying district court litigation filed against Zoll Lifecor. *Id.* at 12.

We have no such evidence in this proceeding. ION and Petitioner are not related corporate entities. The evidence of record shows that Petitioner and ION preliminarily discussed potential remedies relating to the product, itself, not indemnification from litigation. Ex. 2022, 2027. As discussed above in section III.B.(1), absent specific facts evidencing the contractual obligations of the parties, we are not apprised of any evidence indicative of control, or potential to control, this *inter partes* proceeding by ION.

We, therefore, decline to deny the Petition for failure to comply with the requirement of 35 U.S.C. § 312(a)(2) for instituting an *inter partes* review.

C. Privy Under 35 U.S.C. § 315(b)

Under 35 U.S.C. § 315(b), institution of an *inter partes* review is barred “if the petition requesting the proceeding is filed more than 1 year after the date on which the petitioner, real party in interest, *or privy of the petitioner is served with a complaint alleging infringement of the patent*” (emphasis added). Patent Owner contends that ION is a privy of Petitioner by virtue of shared interests regarding the validity of the '520 patent, the indemnity relationship between ION and Petitioner, the common interest privilege asserted by Petitioner and ION with respect to their communications in the ION lawsuit, and because Petitioner is essentially

arguing that remand or reversal of the ION lawsuit on appeal should also extinguish Petitioners liability for infringement of the '520 patent. Prelim. Resp. 16.

We note that “[t]he notion of ‘privity’ is more expansive, encompassing parties that do not necessarily need to be identified in the petition as a ‘real party-in-interest.’” 77 Fed. Reg. at 48,759. It is undisputed that service was effected on ION as a named defendant in the ION lawsuit on June 12, 2009, more than one year before the filing date of this Petition. Patent Owner has not, however, provided evidence showing that Petitioner was a privy of ION on June 12, 2009 when ION was served with a complaint alleging infringement of the '520 patent, nor a privy upon service of the amended complaint on March 14, 2011.

The nature of shared interests in invalidating the '520 patent, undertaking a joint defense, and assertion of a common interest privilege does not, without more, indicate privity between Petitioner and ION. *See* Practice Guide, 77 Fed. Reg. 48,756, 48,760 (Aug. 14, 2012)(“[I]f Party A is part of a Joint Defense Group with Party B in a patent infringement suit, and Party B files a PGR petition, Party A is not a ‘real party-in-interest’ or a ‘privity’ for the purposes of the PGR petition based solely on its participation in that Group.”) Patent Owner contends that Petitioner and ION have spun a “web of interlaced interests and unified legal efforts regarding the '520 patent, infringement liability therefor [sic] and the validity thereof.” Prelim. Resp. 14. As discussed above, collaboration is not, by itself, evidence that ION has any involvement, either by way of control or funding the filing of this Petition.

Patent Owner has not provided evidence, or facts, that give rise to a

showing of privity between ION and Petitioner. None of the evidence cited by Patent Owner, on the record before us, is indicative of the existence, much less consummation, of an indemnification agreement for patent infringement litigation, or IPR proceedings, between ION and Petitioner.

Moreover, as discussed above, Petitioner was never served as a party defendant in the ION lawsuit. Indemnification to fund or defend a lawsuit arises only upon service of the lawsuit upon the defendant. *See Atlanta Gas Light Co. v. Bennett Regulator Guards Inc.*, Case IPR2013-00453, slip op. 16 (PTAB Jan. 22, 2014) (Paper 31) (“Patent Owner’s privity theory relies fundamentally on [Indemnitor] having the right to control Petitioner’s involvement in this proceeding—a right that, at best, arises from Petitioner having been served with the complaint in the district court proceeding.”). Because Petitioner was never served as a defendant in the ION lawsuit, no indemnity impacting funding or control of such a defense could have arisen in that proceeding.

The fact that Petitioner has argued in district court that judgment against ION (in the ION lawsuit) would, if affirmed, render the recovery against Petitioner duplicative, or upon reversal or remand, eliminate Patent Owner’s patent claims against Petitioner, also does not implicate specific control or funding by ION. Patent Owner has failed to explain why such an argument, while indicative of a customer-client relationship, establishes privity between ION and Petitioner. Specifically, Patent Owner does not describe how either scenario is determinative of control or funding of this proceeding. The outcome in both scenarios could be potentially applicable to ION’s customers regardless of privity.

Therefore, we conclude that institution of an *inter partes* review is not

barred by 35 U.S.C. § 315(b).

We turn now to Petitioner's asserted grounds of unpatentability, and Patent Owner's arguments in its Preliminary Response, to determine whether Petitioner has met the threshold standard of 35 U.S.C. § 314(a).

D. Claims 1 and 18 – Anticipated by Workman (Ex. 1004)

Petitioner has established a reasonable likelihood of prevailing on its assertion that claims 1 and 18 are anticipated by Workman for the reasons explained below.

1. Overview of Workman

Workman discloses a method for controlling the position and shape of marine seismic streamer cables towed by a vessel. Ex. 1004, Abstract, Fig. 1. More specifically, Workman teaches that real time signals from a towed streamer array are compared to corresponding input threshold parameters, to determine if the cables should be repositioned. *Id.* at col. 2, ll. 47–51.

Workman discloses that the positions of seismic streamer cables are controlled by birds and tail buoys “for adjusting the vertical and lateral positions of the streamer cables 13.” *Id.* at col. 3, ll. 16–19. Figure 2 of Workman is reproduced below.

Fig. 2

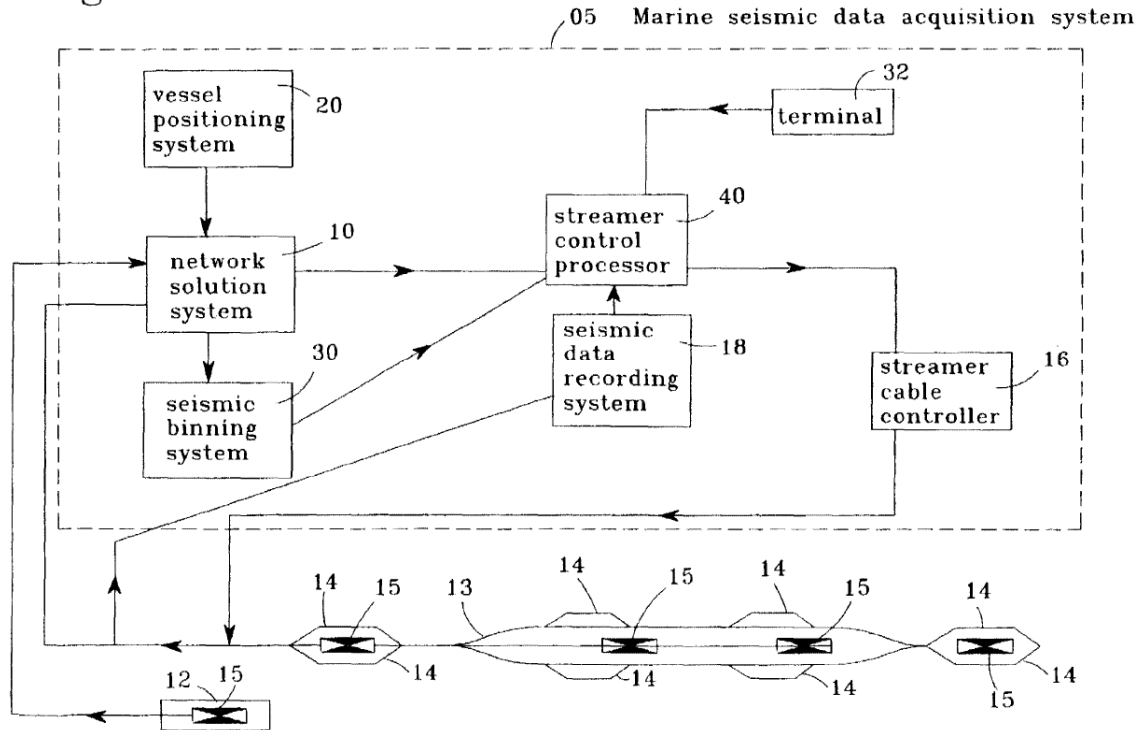


Figure 2 of Workman illustrates diagrammatically seismic data acquisition system 5 for positioning streamer cables 13, including a streamer controller 16 receiving instructions from a streamer control processor 40. *Id.* at col. 4 ll. 16–18. Workman states that once the real time position signals are obtained, “[t]he streamer control processor 40 evaluates these real time signals and the threshold parameters from the terminal 32 to determine when the streamer cables 13 need to be repositioned and to calculate the position correction required to keep the streamer cables 13 within the threshold parameters.” *Id.* at col. 4, ll. 12–16. Threshold values can be, for example, minimum streamer cable separations, minimum allowable seismic coverage, maximum hydrophone noise levels, and minimum obstructive hazard separation. *Id.* at col. 3, l. 66–col. 4, l. 3. Besides repositioning of the streamer cables according to the comparison of real time signals and

threshold parameters, Workman discusses an “at risk” situation, such as entanglement of the streamer cables, or obstructive hazards. *Id.* at col. 4, ll. 45–51. In an “at risk” situation, certain parameters may be disregarded, for example, the hydrophone noise level parameter. *Id.* at col. 4, ll. 41–46. In other situations, the streamer cables may be repositioned due specifically to the level of hydrophone noise. *Id.* at col. 5, ll. 15–19.

2. Discussion

Petitioner argues that Workman discloses a marine seismic survey streamer array towed by a marine vessel. Pet. 28, citing Ex. 1004 col. 1, ll. 10–12. Referring to Workman’s Figure 1, Petitioner asserts that Workman discloses a plurality of streamer positioning devices 14, such as birds and tail buoys, for controlling a streamer. *Id.* Petitioner contends that Workman also teaches a control system including a processor that performs repositioning calculations for adjusting the positioning devices, and hence the streamers, according to inputs the processor receives of actual streamer positions. *Id.* at 29. Petitioner argues specifically that Workman discloses “a streamer separation mode,” which continually monitors the minimum streamer cable separation distances as a threshold parameter, and based on the actual streamer position signals, “will calculate the position corrections necessary to attempt to maintain that minimum separation between the streamers.” *Id.* at 30.

Patent Owner asserts that Workman does not disclose a “feather angle mode,” nor a “turn control mode,” or, for that matter, even a “streamer separation mode,” as recited in claims 1 and 18. *Id.* at 36. Addressing “streamer separation mode,” Patent Owner points specifically to the ION lawsuit, and a deposition passage from ION’s expert, Robert Brune,

indicating that Workman only discloses a “minimum” separation between streamer cables, not a “maximum.” *Id.* at 36–37. Patent Owner’s position is that the minimum separation in “Workman teaches, at most, collision avoidance if streamers get too close, and otherwise has no setting or maintenance—i.e., “control”—over separation or spacing.” *Id.* at 37.

Workman discloses an exemplary threshold of a minimum streamer cable separation distance. *Id.* at col. 3, l. 66–col. 4, l. 3. Workman further teaches that if the actual streamer separation distance fell below the threshold minimum cable separation distance, the streamers would be repositioned outside the minimum streamer cable separation distance. *Id.* at col. 4, ll. 22–35.

For purposes of this Decision, as set forth in section II.A.6, the meaning of streamer separation mode is “a mode to control separation, or spacing, between adjacent streamers.” Here, Petitioner has shown sufficiently that Workman describes a program, or mode, which controls the separation, or spacing between adjacent streamer cables.

As also discussed above in section II.A.7, we find that the limitations in each of claims 1 and 18 reciting the 3 different modes of operation are Markush groups. Because Workman discloses at least the streamer separation mode, for purposes of this Decision and on the present record, the Markush group limitation is satisfied.

For the reasons provided above, Petitioner has established a reasonable likelihood of prevailing on the ground of unpatentability of claims 1 and 18 as anticipated by Workman under 35 U.S.C. § 102(b).

E. Claims 1, 2, 18, and 19 –Obvious over Workman

Petitioner has established a reasonable likelihood of prevailing on its assertion that claims 1, 2, 18, and 19 are obvious for the reasons explained below.

(3) Claims 1 and 18

As noted above, we are persuaded that Petitioner has established a reasonable likelihood of prevailing in showing that claims 1 and 18 are anticipated by Workman. Because anticipation is the epitome of obviousness, a disclosure that anticipates under 35 U.S.C. § 102 also renders the claim unpatentable under 35 U.S.C. § 103. *See In re Fracalossi*, 681 F.2d 792, 794 (CCPA 1982); *In re Meyer*, 599 F.2d 1026, 1031 (CCPA 1979); *In re Pearson*, 494 F.2d 1399, 1402 (CCPA 1974).

Therefore, we conclude that the information presented shows a reasonable likelihood that Petitioner would prevail in demonstrating that claims 1 and 18 are unpatentable as obvious over Workman.

(4) Claims 2 and 19

Claims 2 and 19 depend directly from claims 1 and 18 and recite the more specific limitation “wherein the control mode is the feather angle mode, and the controlling comprises the control system attempting to keep each streamer in a straight line offset from a towing direction by a feather angle.”

Petitioner argues that although Workman does not explicitly disclose a feather angle mode “a POSA would also have found a non-zero feather angle mode obvious.” Pet. 36. Petitioner relies upon the Declaration of Dr. Evans to support this position. *Id.* Dr. Evans states that when ocean currents move the streamers out of a zero degree alignment relative to the

towing vessel, i.e. a zero degree feather angle, “attempting to return the streamers to a zero degree feather angle against the current may generate hydrophone noise that adversely affects data quality.” Ex. 1002 ¶ 150. Dr. Evans alleges that it was well known to a person of ordinary skill in the art that it was beneficial to maintain, for example “a constant two degree feather angle than to return the streamers to the zero degree feather angle position” to produce more reliable seismic data and avoid “smearing” or compromising the seismic data. *Id.* Dr. Evans describes that acquisition of 4D marine seismic data, known in the industry prior to 1998, requires that feather angles of repeated surveys be matched to obtain suitable data for 4D applications. *Id.* ¶ 151. Dr. Evans explains, “[f]or example, if currents forced a survey at time T to be conducted at a 5 degree feather angle, a survey at time T+Δ would also need to be conducted at such a 5 degree angle to obtain suitable data for 4D purposes.” *Id.* citing Ex. 1012 (David H. Johnston et. al., *Time-lapse seismic analysis of the North Sea Fulmer Field*, SEG EXTENDED ABSTRACTS (1997)) (“Johnston”) at 890.

Dr. Evans reasons that given the motivations to have zero, and non-zero feather angles for seismic data acquisition, coupled with Workman’s disclosure of steerable streamer devices such as birds on streamer cables, and Workman’s ability to discern and control the position of streamer cables, “a person of ordinary skill [in the art] reading Workman would have found ‘feather angle mode’ obvious.” *Id.* ¶ 153.

Patent Owner argues that “Petitioner does not even attempt to explain how a person of ordinary skill in the art could have modified Workman in order to keep or maintain ‘each streamer in a straight line offset from the towing direction by a certain feather angle’” Prelim. Resp. 41. Patent

Owner alleges that Petitioner has also failed to provide any motivation to modify Workman based on “Workman’s discouragement of such active positioning.” *Id.*

We are persuaded, for purposes of this Decision, that Petitioner has established a reasonable likelihood of prevailing on claims 2 and 19 because Petitioner’s expert, Dr. Evans, has provided a motivation for maintaining a feather mode during data acquisition operations to replicate previous data acquisition. Dr. Evans alleges that such feather angles were well-known to those in the art, and that returning the streamer array to a zero feather angle would create undesirable noise in the data collection, thus making it important to maintain the streamer array at a certain feather angle. Ex. 1002 ¶ 150. Petitioner also points out through Dr. Evans’s testimony that Workman’s control system monitors the position of the streamers to maintain the streamers at a minimum allowable separation, and therefore, in either a zero, or non-zero feather angle, “[t]he lateral steering capability of the streamer positioning devices attached to the streamer, as disclosed in Workman, would have enabled Workman to be configured to separate streamers and maintain them in straight line configurations.” *Id.* ¶ 153. Patent Owner’s argument that Workman discourages actively steering streamers to attenuate noise in the collected data is not persuasive because Workman explains that hydrophone noise level threshold is just one parameter in evaluating if the streamer cables should be repositioned. Ex. 1004, col. 4, ll. 36–40, 59–col. 5, l. 32. Where the noise threshold levels are not exceeded, the streamer positions can be actively managed. *Id.* at col. 5, ll. 24–29.

Based on the record before us, Petitioner establishes a reasonable

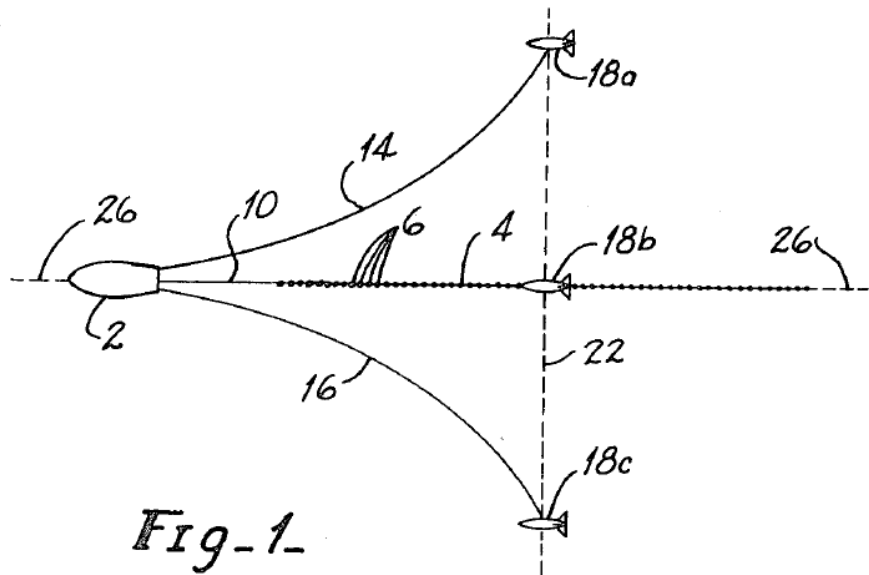
likelihood of prevailing on the ground of unpatentability of claims 1, 2, 18, and 19 as obvious over Workman.

F. Claims 1, 2, 18, and 19 – Anticipated by Hedberg

Petitioner has established a reasonable likelihood of prevailing on its assertion that claims 1, 2, 18, and 19 are anticipated for the reasons explained below.

(1) Overview of Hedberg

As illustrated below, Hedberg discloses a marine seismic exploration system including a streamer (cable) 10 towed behind vessel 2, the streamer having a plurality of echo sensors 6 (such as hydrophones) for sensing the echo of an impulse generating device. Ex. 1005 col. 1, ll. 3–13, 37–38.



The streamer is controlled by steerable paravane 18b connected to the streamer so as to be accurately towed along survey line 26. *Id.* at col. 1, ll. 18–30. As shown below in Figure 8, in another embodiment Hedberg also describes a streamer array for establishing a 3-dimensional sea floor profile,

including three (3) parallel streamers 4a–c towed by the vessel. *Id.* at col. 6, ll. 10–19.

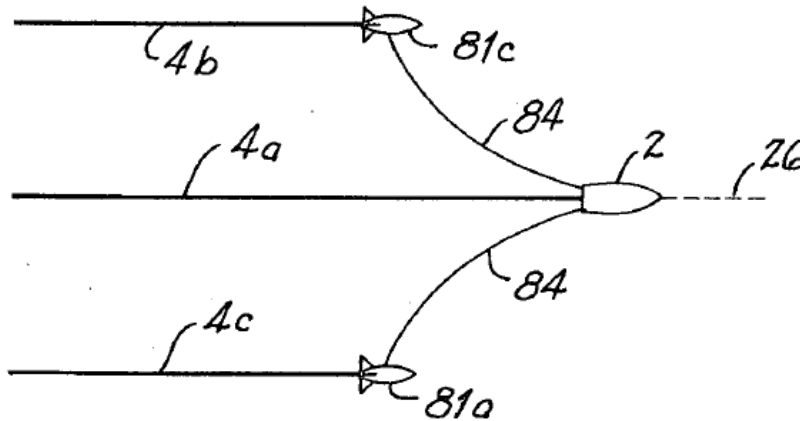


Fig-8-

To obtain an accurate 3-dimensional survey, the vessel tows streamers 4b and 4c, maintained in a spaced apart, parallel arrangement by paravanes 81a and 81c on either side of middle streamer 4a. *Id.* at col. 6, ll. 14–19.

In yet another embodiment, in order to overcome streamer positioning deviations, Hedberg discloses in Figure 10, shown below, streamer 90 controlled by a plurality of paravanes 92. *Id.* at col. 6, ll. 33–42.

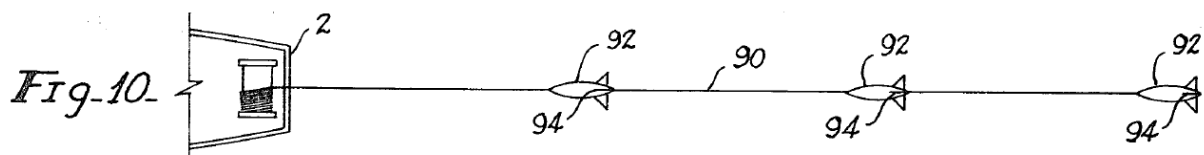


Figure 10 depicts streamer 90 having a plurality of paravanes 92 connected along the length of the streamer for controllably steering the streamer.

Hedberg further explains that the “paravanes are provided with rudders and elevators or other steerable means . . . by which the position of

the paravane, and the various elements or devices connected thereto, can be established and maintained.” *Id.* at col. 6, ll. 41–46. The paravanes are described by Hedberg as carrying a radar reflector 96 corresponding to a radar control 98 on the vessel which determines positioning of the paravane and issues signals to steering motor 100 in the paravane to adjust the paravane rudders 94 “to maintain them in predetermined and accurate positions with respect to each other.” *Id.* at col. 6, ll. 52–54.

(2) *Claims 1, 2, 18, and 19*

Petitioner argues that Hedberg discloses towing an array of streamers in Figure 8 and also that Figures 10–12 teach a plurality of streamer positioning devices (paravanes) provided with rudders and elevators. Pet. 38–39. Petitioner asserts that the positioning devices are controlled by a radar control means on the towing ship which signals the positioning devices with “correction factors” that laterally steer the positioning devices, and hence the streamers. Petitioner argues that Hedberg’s system discloses a plurality of paravanes on a streamer and “controls the paravanes along the streamer cables to ‘maintain [the cables] in predetermined and accurate positions with respect to each other.’” Pet. 41 citing Ex. 1005 at col. 6, ll. 52–54. Also Petitioner charges that Hedberg discloses a control mode that maintains an array of streamers in parallel alignment along a line of travel during the survey. *Id.*

Patent Owner contends that Hedberg mainly discusses a single streamer embodiment, and that steering or position control of an array of streamers is not disclosed by Hedberg. Prelim. Resp. 42–43. Patent Owner argues that the “relative steering or position of streamers in an array is not

mentioned whatsoever in Hedberg.” *Id.* at 43. Patent Owner asserts that the term “spread 4,” as used in the specification of Hedberg, relates to a “spread” of hydrophones along only a single streamer, and thus is not an array of streamers each having a plurality of streamer positioning devices as called for in claims 1 and 18. *Id.* Patent Owner also argues that Hedberg’s embodiments relating to a cable system with “one or more paravanes” is not considered a streamer, or an array of streamers, as the term “streamer” is conventionally used. *Id.* at 44.

Hedberg does disclose a plurality of cables, or streamers, towed by a vessel, and relevant explanation of such two-dimensional arrangements of streamers, including the embodiment with three parallel-aligned streamers shown in Figure 8, for obtaining a three-dimensional seismic profile. *Id.* col. 6, ll. 14–19. Hedberg further refers to such two-dimensional arrangements as providing “multiple spreads” of sensing elements. *Id.* To be clear, Hedberg initially refers to a single streamer having a “spread” of sensors. *See Id.* at col. 3, ll. 3–8. However, in the context of Hedberg’s complete disclosure, we are persuaded on this record that reference to “multiple spreads” refers to sensor spreads on each of a plurality of streamers towed behind a boat, for example as shown in Figure 8, even though no sensors are expressly depicted in that figure. *See Id.* at col. 6, ll. 10–14. Even if Hedberg’s disclosure is not as express as Patent Owner would desire from an anticipation standpoint on this issue, we note the ’520 patent itself reveals that a plurality of streamers, having a plurality of position control devices, are “Prior Art.” *See Ex. 1001, Fig. 1.*

Hedberg discloses the necessity to use birds, or paravanes, to maintain the sensors, and hence the streamers in predetermined, relative positions in

any disclosed embodiment:

In any of the *various forms and arrangements employed in the practice of the present invention*, it is desirable to establish and maintain the impulse generating means and the sensing or echo responsive means in fixed and predetermined relative positions during the recording operations. This may be achieved to the extent heretofore accomplished in conventional seismic surveys by the use of conventional paravanes.

Ex. 1005, col. 6, ll. 20–26 (emphasis added). Keeping in mind the various embodiments in Hedberg which disclose both single and multiple streamers with sensor spreads, we understand Hedberg to disclose that it is important to maintain the impulse generating means, and the sensor spreads on the streamer, or streamers, in relative, predetermined positions.

Within the context of Hedberg, we do not read the various embodiments, including Figures 10–12, as exclusive, but rather inclusive.¹⁰ In the case of parallel adjacent streamers disclosed in the embodiment of Figure 8, the plurality of paravanes shown in Figs. 10–12 on a streamer would keep each adjacent streamer, in an array, in a parallel aligned arrangement. Further, as explained in Hedberg with respect to current, or drift, effecting a streamer exemplified in Figure 9, we are persuaded for purposes of this Decision that the multiplicity of paravanes on a streamer (Figs. 10–12) to correct for such error based on drift or current, exemplifies a control mode that attempts to keep a single streamer, or multiple streamers in a parallel aligned array such as the embodiment of Figure 8, in a straight

¹⁰ Hedberg recognized that the various embodiments and elements were not exclusive of one another, stating, “[i]t will thus be apparent that the various elements and combinations employed in the practice of the present invention are capable of many variations and changes in the application thereof.” *Id.* at col. 6, ll. 66–69.

line offset from the towing direction by a certain feather angle.

Thus, on this record, we are persuaded that there is reasonable likelihood that Petitioner would prevail on the ground of unpatentability of claims 1, 2, 18, and 19 as anticipated by Hedberg.

G. Claims 1, 2, 18, and 19 – Obvious over Hedberg

As noted above, we are persuaded that Petitioner has established a reasonable likelihood of prevailing in showing that claims 1, 2, 18 and 19 are anticipated by Hedberg. Because anticipation is the epitome of obviousness, a disclosure that anticipates under 35 U.S.C. § 102 also renders the claim unpatentable under 35 U.S.C. § 103. *See In re Fracalossi, Id.* at 794; *In re Meyer, Id.* at 1031; *In re Pearson, Id.* at 1402.

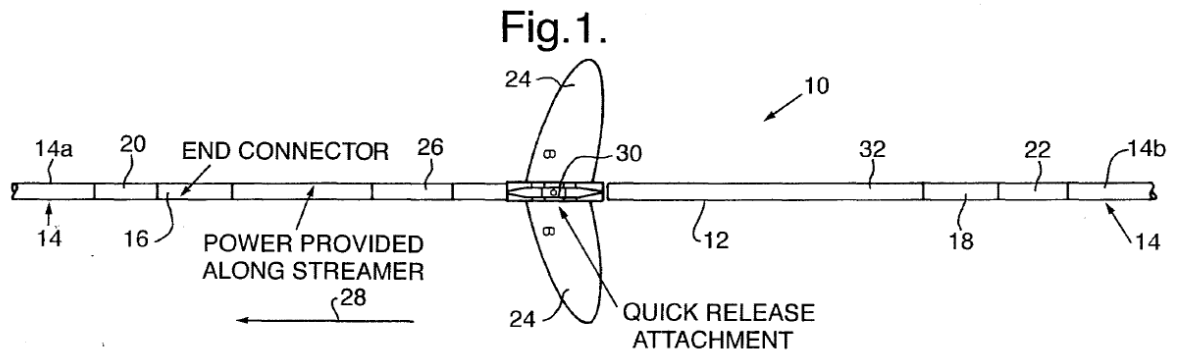
Therefore, we conclude that the information presented shows a reasonable likelihood that Petitioner would prevail in demonstrating that claims 1, 2, 18 and 19 are unpatentable as obvious over Hedberg.

H. Claims 1, 6, 18, and 23 – Obvious over '636 PCT and '153 PCT

(1) Overview of the '636 PCT and '153 PCT

The '153 PCT is drawn generally to a hydrophone cable, or streamer, towed behind a boat, for conducting marine seismic surveys. Ex. 1007, 1. The '153 PCT more specifically discloses a cable position transmission system for transmitting the position, and shape of the cable, for example during turning operations. *Id.* at 3. The cable position transmission system, which can be, for instance, balloon reflectors attached to the cable and detected by radar, can also communicate with the vessel, or alternatively, positioning devices on the cable, to properly align the cables during line sweep and turning operations. *Id.* at 4, 8–9.

The '636 PCT discloses a streamer control device, e.g. "a bird," for controlling the position of a marine seismic streamer as it is towed behind a boat in a streamer array. Ex. 1006, 2. Figure 1 of the '636 PCT, illustrates streamer control device 10 attached to seismic streamer 14. *Id.* at 3–4.



As depicted by Figure 1 of the '636 PCT, above, bird 10 is controlled by wings 24 according to a control system and control circuit to move the bird, and hence the streamer, in both vertical (up and down) and lateral (left and right) directions, to achieve a desired position of the streamer in the water. *Id.* at 5–6.

(2) *Claims 1 and 18*

(3) We exercise our discretion not to institute on this ground for claims 1 and 18 in light of our decision to institute review of these same claims on the grounds discussed above. *See* 35 U.S.C. §314(a); 37 C.F.R. § 42.108(b).

(4) *Claims 6 and 23*

With respect to dependent claims 6 and 23, Petitioner argues that prior to the '520 patent at issue here, streamer positioning devices could control the streamers, so as to "throw out" the streamers during a turn:

the sophisticated streamer positioning systems that were known

by 1998 afforded an ability to generate a force to counteract the well-known and routinely observed effects of centripetal force, thereby avoiding streamer tangling and allowing faster and tighter (and thus less wasteful) turns.

Pet. 51–52 citing Ex. 1007, 10–11, and Ex. 1002 ¶ 206. Petitioner asserts that the '153 PCT thus provides *the motivation* that would lead one of skill in the art to “throw out” the streamers. *Id.* at 52. Petitioner alleges essentially that the motivation comes from identification of the problem, i.e. that turning the boat and towed streamer array is time consuming, and that the streamers must be straightened, and not become entangled, before beginning another pass. *Id.* Petitioner relies explicitly on the explanation in the '153 PCT that a “turning programme” is provided so that “the vessel can then be *steered along a track which is as short as possible and renders an optimum shape of the cable prior to the commencement of another line.*” *Id.* at 53 citing 1007, 11. Petitioner supports this position with Dr. Evans’s Declaration that one of skill in the art, knew before the priority date of the '520 patent, “to make turns ‘as short as possible’” because wider, and slower turns did not permit the streamers to be realigned as quickly. Ex. 1002 ¶ 206. Dr. Evans attests that “the '153 PCT makes clear that a ‘turning programme’ could be programmed to steer during a turn and achieve these well recognized goals of minimizing downtime, optimizing data collection, and avoiding tangling.” *Id.* ¶ 207.

Based on Dr. Evans testimony, and additional evidence presented by Dr. Jack Cole (Ex. 1003) pertaining to the existence of control systems for controlling the birds, Petitioner argues that a person of skill in the art would have been motivated to combine the “turning programme” in the '153 PCT to execute tight turns with a countervailing force, by streamer positioning

devices, i.e. birds, as disclosed in the '636 PCT, applied in a direction opposite to the turn in order to “throw out” the streamers. Pet. 53–57.

Petitioner does not provide a persuasive fact-based analysis to support the obviousness of “throwing out” the streamers during a turn by generating a force on the streamers in a direction opposite to the turn. The identification of the problem, i.e. tangling of streamers during turning, does not, by itself, suggest any particular solution. The '153 PCT explains that it is important to ensure that the vessel *turn* in such a manner as to minimize entanglement and straighten the towed streamers. Ex. 1007, 3. Our understanding of the '153 PCT is that the “turning programme” is a program that directs the vessel itself, as opposed to the towed streamers, to undertake a specific turn rate and radius which thus “renders an optimum shape of the cable prior to the commencement of another line.” Ex. 1007, 11.

Moreover, neither Petitioner's, nor Dr. Evans, statements pertaining to known entanglement occurrences during turning explain how, or why, the “motivation” derived from the '153 PCT leads to the particular solution of “throwing out” the streamers during the turn. The '636 PCT only discloses the general use of streamer positioning devices, such as birds, to control the position of marine seismic streamers. Petitioner fails to point to any disclosure in the '636 PCT, or the '153 PCT, applying a countervailing force by the streamer positioning devices against the centripetal forces on the streamers during a turn. We are also not persuaded that the references, and conclusory testimonial statements of “motivation” proffered by Petitioner, directly relates to steering the streamers in any particular manner during the turn, much less to “throwing out” the streamers against the centripetal forces during the turn as called for in claims 6 and 23.

Accordingly, we are not persuaded that there is a reasonable likelihood that Petitioner would prevail in its contention that claims 6 and 23 are obvious in view of the '153 PCT and the '636 PCT.

I. Claims 1, 6, 18, and 23 – Obvious over '636 PCT and Dolengowski

(1) Overview of Dolengowski

Dolengowski teaches a steerable tail buoy for directing the trailing end of a seismic streamer away from obstacles or obstructions, which could damage the streamers. Ex. 1008, col. 2, ll. 66–col. 3, l. 2. Dolengowski further explains that during turning of the vessel, the streamers are vertically separated, i.e. by depth, one on the surface, another below the surface, in order to prevent entanglement. *Id.* at col. 2, ll. 27–30.

(2) Claims 1 and 18

We exercise our discretion not to institute on this ground for claims 1 and 18 in light of our decision to institute review of these same claims on the grounds discussed above. *See* 35 U.S.C. §314(a); 37 C.F.R. § 42.108(b).

(3) Claims 6 and 23

Similar to the '153 PCT reference, Dolengowski recognizes the tangling issues associated with turning an array of streamers during a marine seismic survey. Ex. 1008, col. 2, ll. 22–38. The solution proposed by Dolengowski is to change the vertical relationship, i.e. depth, of the streamers during turns to avoid such tangling. *Id.* col. 2, ll. 27–30.

As discussed above with respect to the combination of the '153 PCT and the '636 PCT, Petitioner fails to point to any disclosure in either Dolengowski, or the '636 PCT, which suggests applying a countervailing force by the streamer positioning devices to “throw out” the streamers, or

cables, against the centripetal forces effected on the streamers during a turn.

The evidence presented by Petitioner, and by Dr. Evans's testimony, i.e. that entanglement problems existed when turning the array, and that streamer control devices, and control systems, were known, does not adequately explain why one of skill in the art would have used such control devices and systems during a turn in the manner as recited in claims 6 and 23 to "throw out" the devices by applying force in a direction opposite to that of the turn. Dr. Evans's reasoning that a person of ordinary skill in the art would modify the '636 PCT based on Dolengowski to "throw out" the streamers against centripetal forces during a turn is supported only by the conclusory statement that "in order to avoid the well-known compression problem that can lead to tangling, Dolengowski provided *a motivation* to 'throw out' streamers in the 'opposite direction of a turn.'" Ex. 1002 ¶ 215 (emphasis added). As discussed above with respect to the '153 PCT, neither Petitioner's, nor Dr. Evans's, "motivation" statements pertaining to Dolengowski's disclosure of entanglement problems during turning explain how, or why, the particular solution of "throwing out" the streamers during the turn would be reached by one of skill in the art based on Dolengowski alone, or in combination with the '636 PCT.

Thus, we are not persuaded that there is a reasonable likelihood that Petitioner would prevail in its contention that claims 6 and 23 are obvious in view of Dolengowski and the '636 PCT.

IV. SUMMARY

For the forgoing reasons, we determine that the information presented in the Petition establishes a reasonable likelihood that Petitioner would

prevail on at least one alleged ground of unpatentability with respect to each of claims 1, 2, 18, and 19 of the '520 patent. We are not persuaded that Petitioner has shown a reasonable likelihood of prevailing as to claims 6 and 23, thus we do not institute trial on claims 6 and 23.

The Board has not made a final determination on the patentability of any challenged claims.

V. ORDER

For the reasons given, it is

ORDERED that *inter partes* review of the '520 patent is hereby instituted as to claims 1, 2, 18, and 19, on the following grounds.

1. Claims 1 and 18 are anticipated by Workman;
2. Claims 1, 2, 18, and 19 as obvious over Workman;
3. Claims 1, 2, 18, and 19 as anticipated by Hedberg;
4. Claims 1, 2, 18, and 19 as obvious over Hedberg

FURTHER ORDERED that no ground other than those specifically granted above is authorized for the *inter partes* review; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(a) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial on the grounds of unpatentability authorized above; the trial commences on the entry date of this Decision.

IPR2014-00689
Patent 7,293,520 B2

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