

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

HELMERICH & PAYNE INTERNATIONAL DRILLING
COMPANY, HELMERICH & PAYNE TECHNOLOGIES, LLC, and
MOTIVE DRILLING TECHNOLOGIES, INC.,
Petitioner,

v.

NABORS DRILLING TECHNOLOGIES USA, INC.,
Patent Owner.

IPR2021-00897
Patent 8,360,171 B2

Before KEN B. BARRETT, MATTHEW S. MEYERS, and
SEAN P. O'HANLON, *Administrative Patent Judges*.

BARRETT, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

A. *Background and Summary*

Helmerich & Payne International Drilling Company, Helmerich & Payne Technologies, LLC, and Motive Drilling Technologies, Inc. (collectively, “Petitioner”)¹ filed a Petition requesting *inter partes* review of U.S. Patent No. 8,360,171 B2 (“the ’171 patent,” Ex. 1001). Paper 2 (“Pet.”). The Petition challenges the patentability of claims 13–20 and 22–26 of the ’171 patent. Nabors Drilling Technologies USA, Inc. (“Patent Owner”)² filed a Preliminary Response to the Petition. Paper 8 (“Prelim. Resp.”). With our authorization (see Paper 9), Petitioner filed a Reply (Paper 10, “Pet. Reply”) and Patent Owner filed a Sur-reply (Paper 11, “PO Sur-reply”).

An *inter partes* review may not be instituted “unless . . . the information presented in the petition . . . 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) (2018). Having considered the arguments and evidence presented by Petitioner and Patent Owner, we determine that Petitioner has not demonstrated a reasonable likelihood of prevailing on at least one of the challenged claims of the ’171 patent. Accordingly, we do not institute an *inter partes* review of the challenged claims.

¹ Petitioner identifies Helmerich & Payne International Drilling Company, Helmerich & Payne Technologies, LLC, Motive Drilling Technologies, Inc., and Helmerich & Payne, Inc. as real parties-in-interest. Pet. 1.

² Patent Owner identifies Nabors Drilling Technologies USA, Inc. and Nabors Corporate Services, Inc. as real parties-in-interest. Paper 6, 2.

B. Related Proceedings

The parties identify, as matters involving or related to the '171 patent, *Nabors Drilling Techs. USA, Inc. v. Helmerich & Payne Int'l Drilling Co. et al.*, Case No. 3:20-CV-03126 (N.D. Tex.), and Patent Trial and Appeal Board case IPR2021-00621 (U.S. Patent No. 7,823,655 B2). Pet. 1–2; Paper 6, 2–3. We also note that there are several related *inter partes* review proceedings: IPR2021-00621, IPR2020-00671, IPR2021-00672, IPR2021-01018, IPR2021-01043, and IPR2021-01044.

C. The '171 Patent

The '171 patent is titled “Directional Drilling Control Apparatus and Method.” Ex. 1001, code (54). The '171 patent discloses that

directional drilling requires accurate orientation of a bent segment of the downhole motor that drives the bit. Rotating the drill string changes the orientation of the bent segment and the toolface. To effectively steer the assembly, the operator must first determine the current toolface orientation, such as via measurement-while-drilling (MWD) apparatus. Thereafter, if the drilling direction needs adjustment, the operator must rotate the drill string to change the toolface orientation.

Id. at 1:30–37. The '171 patent describes that reorienting the toolface is “very complex, labor intensive, and often inaccurate” because it requires an operator to manipulate the drawworks brake and rotate the rotary table or top drive quill in order to find the precise combination of hook load, mud motor differential pressure, and drill string torque necessary to position the toolface properly. *Id.* at 1:46–54. “Each adjustment has different effects on the toolface orientation, and each must be considered in combination with other drilling requirements to drill the hole.” *Id.* at 1:50–53.

To address these drawbacks, the '171 patent discloses controller 190 that is used in conjunction with a drilling apparatus that includes a hook, top

drive, quill, and drill string with drill pipe that extends into a drill hole, and measurement instruments. Ex. 1001, 2:17–56, 3:33–35, Fig. 1. Controller 190 is configured to receive electronic signals from a variety of sensors “where each sensor is configured to detect an operational characteristic or parameter.” *Id.* at 3:50–54. The instruments of the drilling apparatus “may be configured for the evaluation of physical properties such as pressure, temperature, torque, weight-on-bit (WOB), vibration, inclination, azimuth, toolface orientation in three-dimensional space, and/or other downhole parameters.” *Id.* at 2:63–67. The drilling apparatus may include a toolface sensor configured to detect a current toolface orientation and a torque sensor coupled to the top drive to detect torsion of the quill and/or the drill string. *Id.* at 4:17–38.

Figure 3 of the '171 patent is reproduced below.

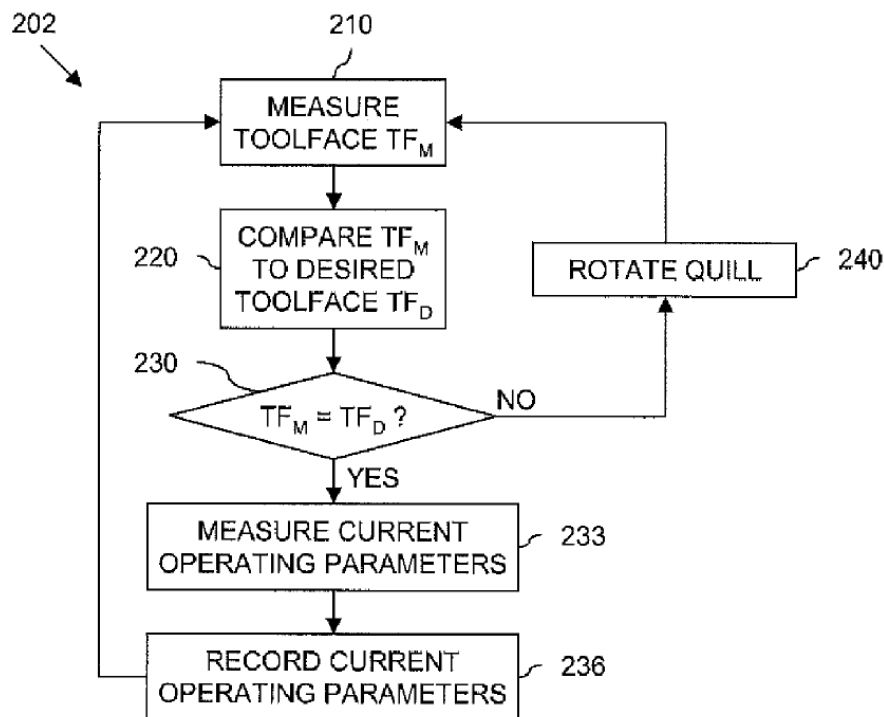


Fig. 3

Figure 3 is a flow-chart diagram of method 202 that expands upon method 200, which is depicted in Figure 2 (not reproduced here). *See* Ex. 1001, 5:40–42. The embodiment shown in Figure 2 contains the steps of measuring the current toolface orientation TF_M (step 210) and comparing current toolface orientation TF_M to a desired toolface orientation TF_D (step 220). *Id.* at 4:64–5:18, Fig. 2. “If the [current toolface orientation] TF_M is sufficiently equal to the [desired toolface orientation] TF_D , as determined during decisional step 230, the method 200 is iterated and the step 210 is repeated.” *Id.* at 5:19–22. “If the TF_M is not sufficiently equal to the TF_D , as determined during decisional step 230, the method 200 continues to a step 240 during which the quill is rotated by the drive system by, for example, an amount about equal to the difference between the TF_M and the TF_D .” *Id.* at 5:29–33.

Method 202 of Figure 3 adds the step of measuring current operating parameters (step 233). Ex. 1001, 5:48–55. “The operating parameters recorded during the step 236 may be employed in future calculations of the amount of quill rotation performed during the step 240,” such as may be determined by, for example, a controller. *Id.* at 5:58–63. “The controller 190 may . . . be configured to automatically generate and transmit control signals directing the quill rotation of step 240, such as in response to the toolface comparison performed during steps 220 and 230.” *Id.* at 6:1–4; *see also id.* at 8:24–28 (“The controller 425 may be further configured to generate a control signal, such as via intelligent adaptive control, and provide the control signal to the drive system 415 and/or the drawworks 420 to adjust and/or maintain the toolface orientation.”).

D. Illustrative Claim

Of the challenged claims of the '171 patent, claim 13 is an independent claim. The remaining challenged claims depend directly or indirectly from claim 13. Claim 13, reproduced below with bracketed annotations used by Petitioner, is illustrative.

13. [Pre] A method of elongating a wellbore in a direction having a horizontal component comprising:
- [a] detecting a current toolface orientation with respect to vertical;
 - [b] comparing the current toolface orientation to a desired toolface orientation based on operating parameters;
 - [c] employing at least one controller to analyze whether one or more comparable operating parameter has been previously recorded;
 - [d] generating drilling control signals to oscillate a quill based on any of the previously recorded drilling operation parameter to redirect the toolface to a corrected drilling path; and
 - [e] rotating a tubular along the corrected drilling path.

Ex. 1001, 22:62–23:8.

E. Evidence

Petitioner relies on the following references:

Reference		Dates	Exhibit No.
Haci	US 7,096,979 B2	Filed July 1, 2003; Issued Aug. 29, 2006	1006
Richarson	US 6,050,348	Filed June 17, 1997; Issued Apr. 18, 2000	1007

Petitioner also relies on the Declaration of Vinod Sharma, P.E. (Ex. 1003, “the Sharma Declaration”) in support of its arguments. The parties rely on other exhibits as discussed below.

F. Asserted Ground of Unpatentability

Petitioner asserts that the challenged claims are unpatentable on the following ground:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
13–20, 22–26	103(a)	Haci, Richarson

II. ANALYSIS

A. Principles of Law

Petitioner bears the burden of persuasion to prove unpatentability of the claims challenged in the Petition, and that burden never shifts to Patent Owner. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) any objective evidence of obviousness or non-obviousness.³ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

³ The parties have not directed our attention to any objective evidence of obviousness or non-obviousness. *Cf.* Pet. 79–80 (Petitioner asserting that no such evidence has been identified).

B. The Level of Ordinary Skill in the Art

In determining the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (internal quotation marks and citation omitted).

Petitioner’s declarant, Mr. Vinod Sharma, opines that

[A person of ordinary skill in the art] would have had a Bachelor’s degree in Mechanical Engineering or Petroleum Engineering, or an equivalent degree, or at least five years of experience related to the design, performance, and control of components and systems used in oil and gas exploration and production, including downhole tools used in drilling applications, with the understanding that the number of years of experience could be higher or lower given the level of education and advanced degrees.

Ex. 1003 ¶ 74; *see also* Pet. 13–14. Patent Owner does not address the level of skill in the art or otherwise dispute Mr. Sharma’s assertion.

Mr. Sharma’s definition is consistent with the level of ordinary skill reflected in the prior art references of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (recognizing that the prior art itself may reflect an appropriate level of skill in the art). For purposes of this decision, we apply Mr. Sharma’s definition of the person of ordinary skill in the art.

C. Claim Construction

We apply the same claim construction standard used in district court actions under 35 U.S.C. § 282(b), namely that articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). *See* 37 C.F.R. § 42.100(b) (2020).

In applying that standard, claim terms generally are given their ordinary and customary meaning as would have been 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. *Phillips*, 415 F.3d at 1312–13. “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17).

Neither party proposes an explicit claim construction for any term. *See, e.g.*, Pet. 21 (“Without conceding that the claims satisfy 35 U.S.C. § 112, Petitioners respectfully submit that the Board need not expressly construe any term because the prior art invalidates the claims under any plausible construction, in accordance with 37 C.F.R. §4[2].100(b).”); Prelim. Resp. 29 n.15 (“Patent Owner’s claim construction positions [taken in the District Court] relating to the ’171 patent are set forth in Ex. 2013, 10–17 (Bates numbered pages 16–23).”); Ex. 2013, 10 (Patent Owner arguing in the District Court that the construction of “comparable operating parameter” of claim 13 is the plain and ordinary meaning).

On this record and for purposes of this decision, we determine that no claim terms require express construction.

*D. The Alleged Obviousness of Claims 13–20 and 22–26
over Hacı and Richardson*

Petitioner alleges that claims 13–20 and 22–26 of the ’171 patent would have been obvious over Hacı and Richardson. *See* Pet. 22–55 (addressing claim 13). Petitioner contends that Hacı discloses or suggests every limitation of independent claim 13 except that, “while *Hacı* suggests

redirecting a toolface by oscillating a quill as would be understood in the '171 Patent, *Haci* does not explicitly disclose a quill.” Pet. 50.

Petitioner “relies on *Richarson* for the basic teaching that a top drive, such as the one described in *Haci*, comprises a quill.” *Id.*

Patent Owner argues, *inter alia*, that the Petition fails to show how the cited references disclose or suggest all of the limitations of claim 13, the sole independent claim challenged in the Petition. *See, e.g.*, Prelim. Resp. 51. In particular, Patent Owner argues that “*Haci* does not disclose comparing the current toolface orientation to a desired toolface orientation based on operating parameters, as recited in claim 13 (limitation 13[b]).” *Id.* at 51 (emphasis omitted).

1. *Haci* (Ex. 1006)

Haci is directed to a “system for directional drilling with a steerable drilling motor, that includes alternating between rotary and slid[e] drilling while the bit remains continuously in contact with the bottom of the bore hole.” Ex. 1006, 1:12–17. *Haci* explains that wells may be drilled directionally when target formations are “located thousands of feet laterally away from the well’s surface location.” *Id.* at 1:26–29. According to *Haci*, a steerable motor can control the trajectory of a bore hole by either “rotary drilling” or “slide drilling.” *Id.* at 1:51–63. *Haci* explains that “rotary drilling” maintains a trajectory of a bore hole at a current azimuth and inclination via rotation of the drill string. *Id.* at 1:54–56. In contrast, the drill string is not rotated during “slide drilling.” *Id.* at 1:60–61. Instead, the direction of drilling “can be adjusted from the earth’s surface by turning the drill string and obtaining information on the tool face orientation by measurements made in the bore hole by a steering tool or similar directional measuring instrument.” *Id.* at 1:65–2:2. Then, the “driller (drilling rig

operator) attempts to maintain the proper tool face angle by applying torque or drill string angle corrections to the drill string from the earth's surface using a rotary table or top drive on the drilling rig." *Id.* at 2:6–9.

Haci discloses that its system alternates between rotary drilling and slide drilling "with the bit remaining in substantially continuous contact with the bottom of the bore hole." *Id.* at 3:29–33. "When the tool face angle of the drilling motor is at a selected angle with respect to the target tool face angle, the driller commences slid[e] drilling by stopping rotation of the drill string." *Id.* at 3:41–44. The "driller commences slid[e] drilling by starting a cyclical rocking routine that rotates the drill string back and forth between selected left-hand and right hand torque magnitudes." *Id.* at 3:45–48. Haci explains that

[i]f the tool face angle is relatively near the target, the driller can change the tool face angle by varying weight on bit, as indicated by pressure of the drilling fluid. If the tool face angle is more than a selected angular displacement from the target, the driller increases one of the left-hand or right-hand torque magnitudes by a selected amount for at least one rocking cycle, which "bumps" the drilling motor in the corresponding direction.

Id. at 3:52–59.

Haci's system "includes a steering tool or directional sensor (51 in FIG. 1) which produces a signal indicative of the tool face angle of the steerable motor (41 in FIG. 1) . . . which outputs a digital tool face angle signal . . . produced at a rate of about once every twenty seconds." *Id.* at 5:56–65; *see also id.* at 6:19–32. Haci discloses that "driller's screen 71 displays pertinent drilling information to the driller and provides a graphical user interface" that "includes a tool face indicator 73, which displays tool

face angle derived from the output of steering tool 51 (FIGS. 1 and 2).” *Id.*
at 6:35–42. Hacı further discloses

drilling motor (41 in FIG. 1) is oriented at a tool face angle selected to achieve a desired trajectory for the bore hole (33 in FIG. 1) during sliding drilling. As the drilling motor 41 is advanced axially into the bore hole (33 in FIG. 1) during sliding drilling, the processor (55 in FIG. 2) operates the drill string rotation controller (61 in FIG. 2) to rotate the drill string (35 in FIG. 1) in a first direction, while monitoring drill string torque using the torque sensor (53 in FIG. 2) and while monitoring tool face angle using the directional sensor (51 in FIG. 2).

Id. at 7:3–13.

A pictorial view of the driller’s screen is shown in Figure 3 of Hacı, and is reproduced below.

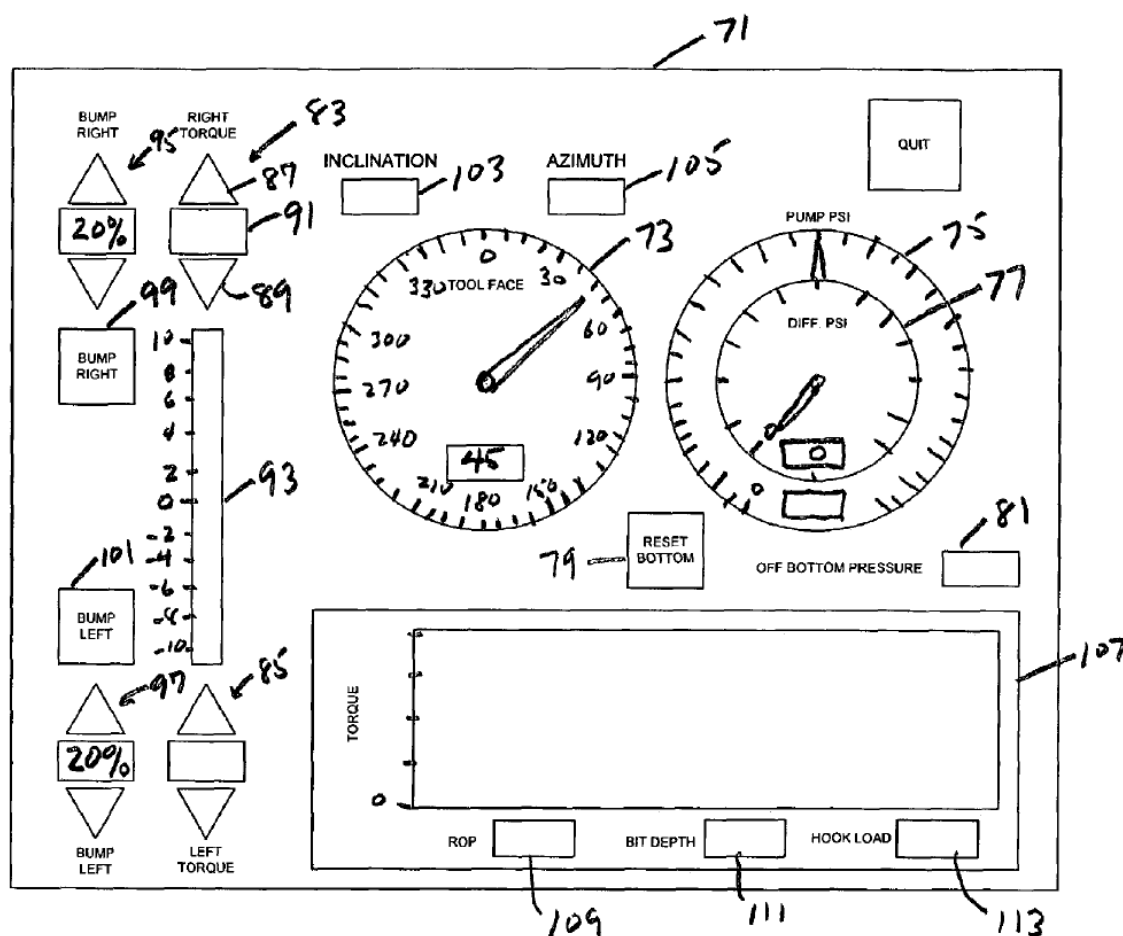


Fig. 3

Figure 3 depicts driller's screen 71, which "includes a combination pump (drilling fluid) pressure indicator 75 and differential pressure indicator 77. Pump pressure indicator 75 displays pressure information derived from pressure sensor 63 (FIG. 2) in dial and numerical form. Differential pressure [indicator 77] displays the difference between off-bottom pump pressure and drill string pressure." *Id.* at 6:45–52.

2. *Richarson (Ex. 1007)*

Richarson is directed to a system "for precisely controlling the rotation of a drill string." Ex. 1007, code (57). Richarson describes that, in subterranean drilling,

[d]irectional drilling, or steering, is typically accomplished by orienting a bent segment of the downhole motor driving the bit. Rotating the drill string changes the orientation of the bent segment and the "toolface", and thus the direction the bit will advance. To effectively steer the assembly, the operator must first determine the current toolface orientation. The operator may measure the toolface orientation with what is commonly known as "measurement while drilling" or "MWD" technology. If the drilling direction needs adjustment, the operator must rotate the drill string to change the orientation of toolface.

Id. at 1:20–29. Richarson's system attempts to "eliminate[e] some or all of the guess work involved in orienting a steerable downhole tool by precisely controlling the angle of rotation of the drill string drive motor." *Id.* at 1:66–2:2.

Richarson's Figure 1 is reproduced below.

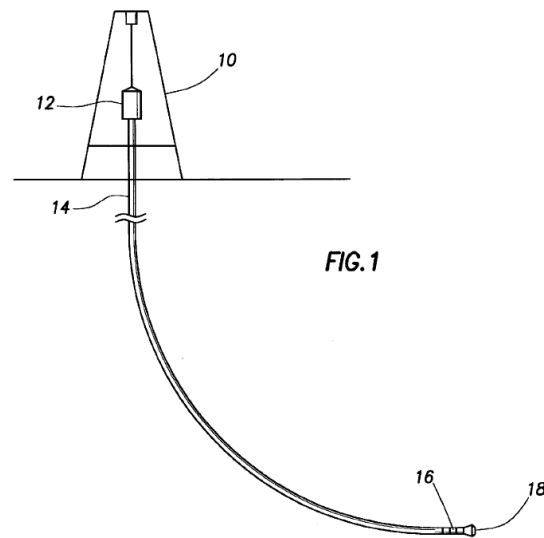


Figure 1 depicts drilling rig 10 having top drive 12 connected to drill string 14 and bit 18 connected to downhole motor 16. Ex. 1007, 3:10–18.

Richarson's Figure 3 is reproduced below.

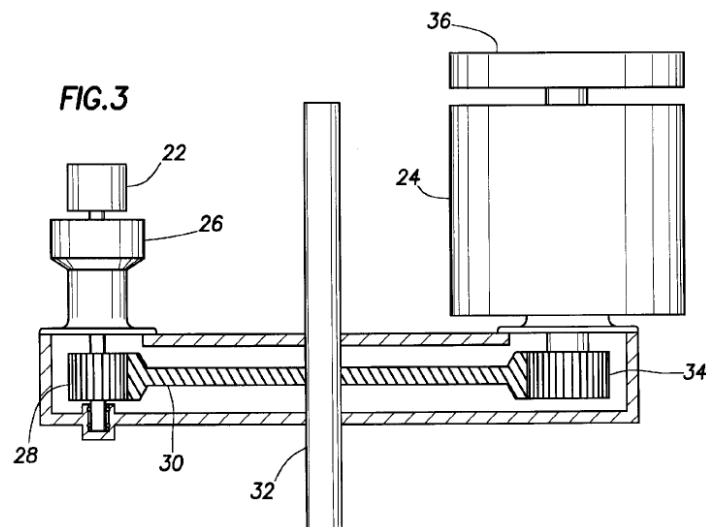


Figure 3 is a simplified depiction of top drive 12 showing hydraulic motor 22 and electric motor 24. Ex. 1007, 3:22–25. Hydraulic motor gearbox 26 is connected to a hydraulic motor pinion 28, which engages bull gear 30 that is connected to the top drive quill 32. *Id.* at 3:47–49. Top drive

quill 32 engages drill string 14. *Id.* at 3:49–50. Bull gear 30 also engages electric motor pinion 34. *Id.* at 3:50–51.

Richarson’s system operates “by continuously oscillating the drill string between the bit and the surface without disturbing the orientation of the toolface.” Ex. 1007, 2:5–9. According to Richarson,

when an operator enters a command to oscillate the top drive quill 180 degrees, the computer 54 rotates the top drive quill 90 degrees clockwise from its neutral position. The computer then stops the clockwise rotation and rotates the quill 180 degrees counterclockwise and stops. The computer 54 then rotates the quill 180 degrees clockwise. The cycle is repeated until a stop command is received.

Id. at 5:34–41.

3. Discussion

For reasons discussed below, Petitioner has not shown a reasonable likelihood that it would prevail in establishing unpatentability of independent claim 13 or the challenged dependent claims as obvious over Hacı and Richarson.

Independent claim 13 recites two separate acts that are performed based on a parameter or on a plurality of parameters. Specifically, limitation 13b recites, “*comparing* the current toolface orientation to a desired toolface orientation *based on operating parameters*,” and limitation 13d recites, “*generating* drilling control signals to oscillate a quill *based on any of the previously recorded drilling operation parameter* to redirect the toolface to a corrected drilling path.” Ex. 1001, 22:66–67, 23:4–7 (emphasis added). The former pertains to a comparison that may be done to subsequently determine whether the current toolface is not sufficiently equal to the desired toolface such that rotational adjustment of the quill is appropriate. *See id.* at 5:4–39, Fig. 2. The latter—the generating step—pertains to the action taken to move

the quill in order to redirect the toolface to the corrected path. *See id.* at 29–33, Fig. 2.

For limitation 13b—the step of comparing orientations “based on operating parameters”—the parties appear to agree that a plurality of parameters is required. *See* Pet. 29 (Petitioner referring to “multiple operating parameters”); Prelim. Resp. 58 (Patent Owner emphasizing the “s” on the end of the claim term “parameters”); *see also id.* at 45 (Patent Owner asserting that “the ’171 patent discloses and claims steps of comparing the current toolface orientation to a desired toolface orientation based on multiple operating parameters.”). Petitioner contends that Hacı discloses comparing the current toolface orientation with the desired orientation based on the operating parameters of: 1) orientation of the toolface, 2) torque, and 3) pressure. Pet. 29–33. Patent Owner argues that Petitioner has not shown that Hacı discloses the recited orientation comparison being based on torque or pressure. Prelim. Resp. 58. Patent Owner contends that Hacı discloses that changing torque and pressure may adjust the toolface, but that is not a comparison of the two recited orientations. *Id.* at 60. We find to be persuasive Patent Owner’s argument that Petitioner has not shown adequately that Hacı discloses comparing two orientations based on a plurality of parameters.

Petitioner’s analysis for this limitation begins with the contention that Hacı discloses determining the difference between the current toolface orientation and the desired (which Petitioner asserts is “comparing”) and making certain adjustments by increasing torque magnitudes to thereby bump the drilling motor. Pet. 27–29; *see also id.* at 24 (associating the drilling motor with the toolface angle). Petitioner also impliedly contends

that orientation of the toolface, torque, and pressure are “operating parameters” that are the same or similar to the operating parameters disclosed in the ’171 patent. *See id.* at 29 (Petitioner noting that “Dependent Claim 19 of the patent, which depends from independent Claim 13, recites specific ‘operating parameters’ including: ‘at least one of torque, speed, or orientation of a quill or toolface.’” (emphasis omitted)).

Petitioner contends that *Haci* discloses steering tool or directional sensor 51 that provides a digital tool face angle signal, and comparing this angle to the target tool face angle. Pet. 30 (citing Ex. 1006, 5:55–62, Fig. 4; Ex. 1003 ¶ 109). According to Petitioner, *Haci* therefore discloses comparing the current toolface orientation and desired toolface orientation based on the orientation of the toolface, which is an operating parameter. *Id.* (citing Ex. 1003 ¶ 109). If this is correct, Petitioner has demonstrated a likelihood of showing a comparison based on one parameter; however, the claim requires a plurality of operating parameters.

Petitioner further contends that torque is an operating parameter and that *Haci* measures torque applied to the drill string. Pet. 30 (citing Ex. 1006, 6:4–6, 6:12–15; Ex. 1003 ¶ 110). Petitioner asserts that *Haci* discloses that the operator applies torque to maintain or adjust the toolface angle. *Id.* Petitioner then argues the following:

In other words, *Haci* discloses that by monitoring and measuring torque, a driller would know the relationship or comparison between the current toolface orientation and a desired toolface orientation. Ex. 1003, ¶110. Further, a POSITA [(person of ordinary skill in the art)] would have understood that torque applied to the drill string affects toolface orientation, and a POSITA would have compared the current

toolface orientation and a desired toolface orientation based on torque. *Id.*, ¶110.

Id. at 31. The cited paragraph of the Sharma Declaration makes the same or substantively similar assertion without further elaboration. *See* Ex. 1006 ¶ 110.

Petitioner similarly argues, in the context of dependent claim 19, which specifically identifies torque as an operating parameter,⁴ that

A POSITA would have understood that toolface orientation can be affected by torque applied to the drill string. Ex. 1003, ¶175. Thus, a POSITA would have further understood that the torque measurement is an “operating parameter” on which the comparison between a current toolface orientation and a desired toolface orientation may be based. *Id.*

Pet. 67–68. Petitioner, accordingly, again argues that *Haci* discloses an operating parameter in the form of torque and that the application of torque can change toolface orientation, and follows that with the conclusory assertion that a person of ordinary skill in the art would have understood *Haci* to base an orientation comparison on torque.

Petitioner additionally contends that pressure is an operating parameter and *Haci* discloses that the driller can change the toolface by varying the pressure. Pet. 32. Petitioner argues,

In other words, increasing differential pressure is indicative of a shift in toolface angle to the left (counterclockwise), and decreases in differential pressure are indicative of a shift in toolface angle to the right. Ex. 1003, ¶113. By disclosing this relationship, *Haci* discloses using this pressure measurement to know when there is a change in the toolface angle and using

⁴ Dependent claim 19: “The method of claim 13, wherein the operating parameters comprises at least one of torque, speed, or orientation of a quill or toolface.” Ex. 1001, 23:24–26.

pressure in its comparison between a current toolface orientation and a desired toolface orientation. *Id.*

Pet. 32. Petitioner argues that, “[a]ccordingly, *Haci* discloses ‘comparing the current toolface orientation to a desired toolface orientation’ based on the pressure, which is an ‘operating parameter.’” *Id.* at 32–33 (citing Ex. 1003 ¶ 113). The cited paragraph of the Sharma Declaration makes the same or substantively similar assertion without further elaboration. *See* Ex. 1006 ¶ 113.

Petitioner’s arguments are too conclusory to meet its burden of demonstrating a likelihood of prevailing in its challenge. Petitioner does not indicate clearly how it interprets the claimed step of “comparing” two orientations “based on operating parameters,” making it very difficult to understand Petitioner’s theory of the case. *See, e.g.*, Pet. 21 (“Petitioners respectfully submit that the Board need not expressly construe any term because the prior art invalidates the claims under any plausible construction.”); *cf.* 37 C.F.R. § 42.104(b)(3)–(4) (explaining that a petition must set forth how the challenged claim is to be construed and how the construed claim is unpatentable). Petitioner argues that torque and pressure can change the toolface orientation but does not explain adequately how that constitutes comparing two orientations based on torque and pressure. Further, claim 13 contains a separate limitation directed to changing the toolface based on a previously recorded parameter. *See* Ex. 1001, 23:4–7 (limitation 13d: “generating drilling control signals to oscillate a quill based on any of the previously recorded drilling operation parameter to redirect the toolface to a corrected drilling path”). Petitioner fails to explain how its theory of the case does not conflate the “comparison” step with the step of “generating drilling control signals to . . . redirect the toolface.”

In its summary for limitation 13b, Petitioner contends that a person of ordinary skill in the art “would have understood that the toolface angle can be continuously monitored by transitioning between such toolface sensor readings (which are more refined but less frequent), and torque measurements and/or pressure measurements (which are coarser but more frequent).” Pet. 33 (citing Ex. 1003 ¶¶ 48–61, 114). Even if correct, this proposition seems to conflate the “comparing” step with the step of limitation 13a, “detecting a current toolface orientation with respect to vertical.” Ex. 1001, 22:64–65. Petitioner fails to explain adequately how monitoring the toolface angle satisfies the step of comparing the current toolface orientation to the desired orientation based on operating parameters.

Having considered the parties’ arguments and evidence, we determine that Petitioner has not demonstrated a reasonable likelihood of demonstrating that independent claim 13 would have been obvious over Hacı and Richarson.

The remaining challenged claims, claims 14–20 and 22–26, depend directly or indirectly from independent claim 13. Petitioner’s arguments regarding these claims do not cure the defects of the underlying challenge to independent claim 13. *See* Pet. 55–79. Accordingly, Petitioner also has not demonstrated a reasonable likelihood of prevailing in its challenge to dependent claims 14–20 and 22–26.

III. DISCRETIONARY DENIAL

Patent Owner argues that we should exercise our discretion to deny institution of *inter partes* review in this case under 35 U.S.C. § 325(d) and/or § 314(a). Prelim. Resp. 3–41; Sur-reply 1–5. Because we have considered the merits of Petitioner’s challenges and decline to institute an

inter partes review on that basis, we need not determine whether it would be appropriate to discretionarily deny institution of an *inter partes* review under § 325(d) or § 314(a).

IV. CONCLUSION

Petitioner has not demonstrated that there is a reasonable likelihood of establishing the unpatentability of any of claims 13–20 and 22–26 of the '171 patent.

V. ORDER

For the foregoing reasons, it is

ORDERED that the Petition is *denied* and no trial is instituted.

IPR2021-00897
Patent 8,360,171 B2

PETITIONER:

Chad Walters
Doug Kubehl
Megan LaDriere
BAKER BOTTS L.L.P.
chad.walters@bakerbotts.com
doug.kubehl@bakerbotts.com
megan.ladriere@bakerbotts.com

PATENT OWNER:

David Odell
Jonathan Bowser
Vera Suarez
Jeff Wolfson
HAYNES AND BOONE, LLP
david.odell.ipr@haynesboone.com
jon.bowser.ipr@haynesboone.com
versa.suarez.ipr@haynesboone.com
jeff.wolfson.ipr@haynesboone.com