

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

WEATHERFORD U.S., L.P.,

Petitioner

v.

HALLIBURTON ENERGY SERVICES, INC.,

Patent Owner

Case No. IPR2024-00990

Patent 11,333,007

PATENT OWNER'S REQUEST FOR DIRECTOR REVIEW

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Patent Owner (“PO”) requests Director Review of the Board’s Final Written Decision (“FWD”) finding unpatentable Original Claim 14 and Substitute Claims 29-31 and 33 of U.S. Patent No. 11,333,007 (the “’007 Patent”). 37 C.F.R. § 42.75. Director Review of the FWD is appropriate and necessary here to address (1) the Board’s abuse of discretion in raising a new combination not presented by Petitioner, (2) the Board’s erroneous conclusions of law, and (3) its erroneous findings of fact. *See* USPTO, Director Review Process, § 2.B. Decisions of the Board under Director Review are reviewed *de novo*. *Id.*, § 5.A.ii(c).

I. BACKGROUND

Halliburton is a U.S. energy innovator with over 8,500 active U.S. Patents. The ’007 Patent relates to gravel packing technology, in which sand screen assemblies pack gravel into a wellbore to prevent sand intrusion into oil and/or gas production. EX1001, 1:16-30. Petitioner challenged Original Claims 1-12 and 14-23 as obvious over the *Yeh* and *Yeh2* references (among others). Pet., 29-30. The primary reference, *Yeh*, describes an upstream concentric sand screen, rated to high pressure for gravel packing long distances, connected to a downstream eccentric sand screen, rated to lower pressure for gravel packing shorter distances. EX1005, 30:13-25. *Yeh*’s invention is a “crossover tool” that forms the transition from the concentric screen to the eccentric screen. EX1005, Title, 1:1-32, 4:12-21.

PO argued against obviousness of Original Claims 1-10 and 14-23, and filed

a Revised Motion to Amend (RMTA) with contingent amendments in Substitute Claims 24-40. PO amended Claims 29 and 31 to recite eccentric screens as both upstream and downstream screens, in contrast to *Yeh*'s concentric screen upstream. Paper 21, 3, Appx. A; EX1005, 30:13-25. Petitioner opposed the RMTA based on the combination of *Yeh*, *Yeh2*, and *Bonner*, arguing *Bonner* taught a "high-pressure" eccentric screen that, when "substituted for *Yeh*'s [high-pressure] concentric screen," yields two eccentric screens, upstream and downstream. Paper 26, 8-11.

Petitioner's primary motivation to combine *Yeh* and *Bonner* is removing *Yeh*'s crossover tool. Paper 26, 9. The FWD disregarded this motivation and maintained *Yeh*'s crossover tool and concentric screen, yielding a combination with three screens. FWD, 31. The FWD thus found Substitute Claims 29-37 unpatentable and denied the RMTA, but found Original Claims 1-10 and 21-23 patentable. FWD, 37.

II. ARGUMENT

The Director should grant review and reverse the FWD as to Original Claim 14 and Substitute Claims 29-31 and 33. The FWD reads a key limitation out of Claim 14 and flips the testimony of Petitioner's expert on its head. For Claims 29-31, the FWD offers no motivation for its new combination, which was not raised by Petitioner. The FWD suggests Claims 29-31 were obvious to try, but fails to pass *KSR*'s test for establishing the claims were obvious to try. And the FWD raises a *sua sponte* ground for Claims 29-31 absent readily identifiable and persuasive

evidence of unpatentability. The FWD also misconstrues Claim 33, citing an argument Petitioner never made and offering no rationale for its claim construction.

A. Original Claim 14: The FWD read the “selecting” step out of claim element 14[c] and misread the testimony of Petitioner’s expert.

First, the Board erred as a matter of law by removing element 14[c]’s “selecting” step. Element 14[c] recites a “distal end of the production zone” that Petitioner construes as the “toe” of the production zone. Pet., 64 (describing “distal end at the toe”). The FWD adopted Petitioner’s position. FWD, 22-23.

Element 14[c] also requires “selecting a low pressure shunt tube system based on the distal end determined pressure.” The FWD found a POSITA “would have selected eccentric screens for the distal end of the production zone,” and specifically, that “low-pressure rated eccentric screens could be used” in a region “covering the toe.” FWD, 22-23. But selecting an eccentric screen for use “covering the toe” is not the same as selecting it “based on the distal end determined pressure,” which Petitioner argues is the pressure at the toe. *See* PO Resp., 37-38. The FWD replaces element 14[c]’s “selecting” step with a step of “using” the low-pressure screen to cover the toe. FWD, 22. That is not what the “selecting” step requires. Paper 20, 21-23. Element 14[d] makes this clear: it separately recites using the low-pressure screen in an “installing” step. EX1001, 20:18-20. The Board’s finding for Claim 14 should be reversed, as it misreads element 14[c]’s “selecting” step.

Second, the Board erred in its findings of fact for Claim 14. The FWD relies on paragraphs 385-388 of Mr. Chambers' declaration to find element 14[c] obvious. FWD, 22-23. But the cited testimony contradicts the Board's finding. Paper 10, 37-38. Mr. Chambers states that at the "toe," "the pressure will be zero." EX1003, ¶386. According to Mr. Chambers, there is thus no need for the claimed "determining ... operating pressure associated with the distal end of the production zone," because operating pressure associated with the toe is known. Mr. Chambers also states "a POSITA would understand to place the eccentric screens ... where the pressure dropped below the pressure tolerance limits of Yeh's recommended commercial eccentric screens," which was "3,000 psi." EX1003, ¶388. So according to Mr. Chambers, a POSITA would not have "select[ed] a low pressure shunt tube system based on the distal end determined pressure," because a POSITA would have selected commercial eccentric screens having a set pressure limit: 3,000 psi.

B. Substitute Claims 29-31:

For Claims 29-31, the FWD errs in law, errs in fact, and abuses the Board's discretion. Claims 29-30 are addressed below, but Claim 31 also recites eccentric screens upstream and downstream and is patentable for the same reasons.

1. The FWD offered no motivation for its new combination.

The FWD raises a new combination of the *Yeh* and *Bonner* references, not raised by Petitioner. Petitioner's combination has two screens: *Bonner*'s eccentric

screen and *Yeh*'s eccentric screen. Paper 26, 9 (“substituting” *Bonner*'s eccentric screen for *Yeh*'s concentric screen). The FWD proposes a combination of three screens: (1) *Yeh*'s concentric screen, (2) *Bonner*'s eccentric screen, and (3) *Yeh*'s eccentric screen. FWD, 30-31 (stating POSITA “would use *Bonner*'s eccentric sand screen assembly with *Yeh*'s eccentric sand screen assembly,” but concentric screens could also “still be used”). The FWD also directly contradicts Petitioner's motivation to combine. Petitioner's combination “substitute[ed] *Bonner*'s eccentric sand screen for *Yeh*'s concentric sand screen,” motivated by “removal of *Yeh*'s crossover tool.” Paper 26, 9. The FWD nonetheless states “Petitioner's argument” does not “prevent[] a crossover tool from being used.” FWD, 31. The FWD replaces Petitioner's combination with its own *sua sponte* combination.

Instead of explaining why a POSITA would have implemented Petitioner's proposed combination or offering a motivation for its new combination, ***the Board merely assumes a combination*** and finds it meets the claim elements. The FWD states that the challenged claims “would result from combining *Yeh* and *Bonner*,” but does not articulate why a POSITA would have been motivated to use *Bonner*'s eccentric screen in place of *Yeh*'s concentric screen as required by Petitioner. FWD, 30. Combining *Yeh* and *Bonner* without articulating any motivation to combine is an error of law that merits reversal. *See In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d 1364, 1379 (Fed. Cir. 2016); *Virtek Vision Int'l ULC v. Assembly Guidance Sys.*,

Inc., 97 F.4th 882, 888 (Fed. Cir. 2024) (“A reason for combining must exist.”).

At best, the FWD describes a need to select sand screens that “withstand” the operating pressure in the wellbore. FWD 30, 31. But this need to withstand operating pressure merely describes a problem in the art, not a motivation to combine *Yeh* and *Bonner*: “knowledge of a problem and motivation to solve it are entirely different from motivation to combine particular references to reach the particular” claim. *Innogenetics, N.V. v. Abbott Lab’ys*, 512 F.3d 1363, 1373 (Fed. Cir. 2008). Moreover, the evidence the Board cites for the need to “withstand” operating pressure actually describes the need to use a **concentric** screen in high pressure regions and an eccentric screen in low pressure regions. EX1003, ¶¶382-83 (“Yeh taught to install concentric screens at the heel, which was the higher-pressure side, ... while eccentric screens were to be placed on the toe, or lower-pressure side.”). Petitioner submitted this evidence against the Original Claims and never relied on it to motivate combining *Yeh* and *Bonner*. Paper 26, 7-11; Paper 33, 1-5. The FWD offers no motivation to combine, and the evidence it relies on teaches against substituting *Bonner*’s eccentric screen for *Yeh*’s concentric screen.

The FWD also improperly flipped the burden to motivate the *Yeh-Bonner* combination. The Board disregarded PO’s argument that Petitioner’s motivation, removing *Yeh*’s crossover tool, fundamentally alters *Yeh*’s principle of operation and renders *Yeh* inoperable for its primary purpose (Paper 30, 2), reasoning that nothing

“prevents a crossover tool from being used.” FWD, 31. But PO has no burden to “prevent” a combination; Petitioner must establish obviousness by a preponderance of the evidence. 37 C.F.R. § 42.121(d)(2); *see Lectrosonics Inc. v. Zaxcom, Inc.*, IPR2018-01129, Paper 15 at 4 (PTAB Feb. 25, 2019). And the rationale that a crossover tool “could” be used in the FWD’s combination fails to meet the burden to establish a POSITA “would” have used a crossover tool to gravel pack with three different screens. *In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984) (“The mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification.”).

And finally, the Board also erred in fact, as the art discourages replacing *Yeh*’s concentric screens with *Bonner*’s eccentric screens. Petitioner introduced *Bonner* as a conventional, low-pressure eccentric screen. Pet., 27-28 (noting *Bonner*’s screen was “functionally the same as existing industry-proven designs”). *Yeh* limits such a screen to packing 3,000 feet, while using concentric screens to pack to 5,000 feet. EX1005, 30:13-25. Only after PO’s motion to amend did Petitioner reimagine *Bonner*’s screen as high pressure, based on *Bonner* disclosing a 5,000-psi burst pressure. Paper 26, 7-8. But Petitioner overlooked *Bonner*’s safety factor, which reduces *Bonner*’s 5,000-psi **burst** pressure to approximately the 3,000-psi **working** pressure of conventional, low-pressure eccentric screens. Paper 30, 3-5. And *Hurst* explains that conventional, low-pressure eccentric screens were rated to 5,000-psi

burst (not working) pressure—the same as *Bonner*, and over a decade earlier. EX1013, 2, 9. The FWD overlooks *Hurst*. FWD, 29-31. The art is clear: *Bonner* discloses a conventional, low-pressure eccentric screen that was not suitable to replace *Yeh*'s high-pressure concentric screen. *See* Paper 30, 3-6.

2. *The FWD erred in finding Claim 29 obvious to try.*

Absent any motivation for its new three-screen combination, the FWD finds the claims obvious to try, after finding PO “does not directly address” whether the claims were obvious to try. FWD, 30. But PO explained that the *Yeh-Bonner* combination was not obvious to try because (1) the combination renders *Yeh* inoperable for its intended purpose and (2) *Bonner*'s low-pressure eccentric screen was not a suitable substitute for *Yeh*'s high-pressure concentric screen. Paper 30, 2-5; Paper 37, 42:11-17. More importantly, finding an invention obvious to try by merely identifying “two alternative arrangements,” absent a motivation to combine, “is an error as a matter of law.” *See Virtek*, 97 F.4th 882, 886-88.

To establish a claim was obvious to try, *KSR* requires a showing of “a design need or market pressure to solve a problem,” “a finite number of identified, predictable solutions,” and “good reason to pursue the known options within [a POSITA's] technical grasp.” *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 402 (2007). As noted above, the Board rejected Petitioner's ostensible design needs: removing *Yeh*'s crossover tool and reducing installation times. *See* FWD, 31. The

FWD itself identifies no design need or market pressure for rating eccentric screens to higher pressure. FWD, 29-31. This is unsurprising, as concentric screens already (and indisputably) packed to 6,500 psi and 5,000 feet. Pet., 21-22; EX1005, 28:14-20, 30:15-20. The FWD's failure to identify any design need or market pressure is strong evidence of hindsight. *See In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999), *abrogated on other grounds by In re Gartside*, 203 F.3d 1305 (Fed. Cir. 2000).

Nor does the prior art here indicate a high-pressure eccentric screen was within a POSITA's "technical grasp." The art consistently taught eccentric screens had limited pressure rating and packing distance. *Yeh* limited eccentric screens to packing 3,000 feet on the "lower-pressure side" of the production interval, versus 5,000 feet for concentric screens on the "higher pressure side." EX1005, 30:15-25. *Yeh2* used a concentric screen to obtain "higher working pressures" "demanded at extreme lengths." EX1006, 3. *Hecker* states "eccentric 2x2" screens are limited to a "working pressure of 3,000 psi which limits the packable length to ~3,200 ft." EX1015, 1. Petitioner introduced these references uniformly limiting eccentric screens to lower pressures and using concentric screens for high-pressure operation. The prior art fails to meet *KSR*'s standard for finding the claims obvious to try.

Finally, Petitioner's *Uber* decision is inapt here. *Uber* found claims obvious to try when choosing between two alternatives in the prior art—unrelated to the "alleged novelty" of the claim—rendered the claim a "predictable variation" on the

prior art. *Uber Techs., Inc. v. X One, Inc.*, 957 F.3d 1334, 1339-40 (Fed. Cir. 2020). In contrast here, and as summarized in the prior paragraph, the art teaches significant differences between concentric and eccentric screens—particularly in their pressure rating and ability to pack long distances. These differences are highly relevant to claim limitations relating to the screens' burst pressure and operating pressure. Paper 21, Claims 29-30 (reciting screens with different “burst pressure[s]” and “operat[ion] at pressures between 5000 psi and 10000 psi”). As the art teaches that concentric and eccentric screens are not predictable variations of one another, Claims 29-31 are not obvious to try. *See Takeda Chem. Indus., Ltd. v. Alphapharm Pty., Ltd.*, 492 F.3d 1350, 1359 (Fed. Cir. 2007) (finding invention “not obvious to try” when allegedly obvious alternative “exhibited negative properties that would have directed one of ordinary skill in the art away from that” alternative).

Virtek is more applicable. In *Virtek*, the Federal Circuit found an “alternative arrangement” not obvious to try absent a motivation to combine that arrangement with other prior art references. *Virtek*, 97 F.4th 882, 886. Similarly here, the FWD found Petitioner's motivations to combine unpersuasive and offered none itself. FWD, 29-31; Paper 26, 9. As in *Virtek*, there remains no analysis of “why a skilled artisan would make this substitution” of eccentric screens for concentric screens, other than the fact that both were “known to be used.” *See Virtek*, 97 F.4th 882, 886.

The FWD has not shown Claims 29-31 were obvious to try because it offers

no motivation for its combination (FWD, 29-31) and because the prior art teaches against replacing concentric screens with eccentric screens (Paper 30, 3-5).

3. *The Board abused its discretion by raising a sua sponte combination not presented by Petitioner.*

The FWD's three-screen combination of *Yeh* and *Bonner* is a *sua sponte* ground not presented by Petitioner. *Supra* § III.B.1. The Board should raise *sua sponte* grounds "that the petitioner did not advance, or insufficiently developed," only in "rare circumstances." *Hunting Titan, Inc. v. Dynaenergetics Eur. GmbH*, No. IPR2018-00600, Paper 67, at 4 (P.T.A.B. July 6, 2020). Here, Petitioner opposed the RMTA, so the FWD's *sua sponte* ground requires "readily identifiable and persuasive" evidence of unpatentability. *Hunting Titan*, Paper 67, at 13, 21-22.¹ The

¹ The Office de-designated *Hunting Titan* as precedential after the Federal Circuit found some of the Panel's reasoning "problematic." *See* 89 Fed. Reg 15531, 15334-36 (March 4, 2024). But the Federal Circuit expressly did not address the "readily identifiable and persuasive standard" or limits on Board discretion to raise *sua sponte* grounds. *Hunting Titan, Inc. v. DynaEnergetics Eur. GmbH*, 28 F.4th 1371, 1382 (Fed. Cir. 2022). PO submits that the Board's discretion to raise *sua sponte* combinations, without articulating a motivation to combine, raises an important, unresolved issue of law and policy meriting Director Review.

FWD's new three-screen combination is neither readily identifiable nor persuasive. The Board did not identify any additional evidence and actively contradicted Petitioner's primary motivation for combining *Yeh* and *Bonner*, removal of *Yeh*'s crossover tool. FWD, 29-31. And as detailed above, the Board did not provide a motivation for its new combination, which the art actively discourages. *Supra*, § III.B.1. The Board abused its discretion in raising a new combination *sua sponte*, meriting reversal as to Claims 29-31.

4. *The FWD erred as to Claim 30 by finding a POSITA would have modified Bonner's screen to withstand operation above 5,000 psi.*

The FWD does not present any additional analysis for Claim 30, and its discussion of Claim 29 does not offer evidence of an eccentric screen operating above 5000 psi, as required in Claim 30. FWD, 29-31. Indeed, the art consistently recognized eccentrics could not operate above 3,000 psi, which was the very reason *Yeh* used concentric screens to pack longer distances. Pet., 27, 66-67 (describing “[m]aximum [current eccentric screen] shunt system working pressure of 3,000 psi which limits the packable length to ~3,200 ft”); EX1005, 30:15-20 (stating “commercial eccentric screens” are “capable of gravel packing” “3,000 feet”).

Rather than crediting the art's teaching that eccentric screens were limited to 3,000 psi, the FWD credits Petitioner's argument that it would have been obvious to thicken shunt tube walls in *Bonner*'s eccentric screen to obtain a higher pressure

rating. FWD, 30; Paper 26, 10. But Petitioner's reason for modifying *Bonner's* eccentric screen to operate above 5,000 psi is **removal** of *Yeh's* crossover joint. Paper 26, 9; EX1044, ¶73 ("us[ing] an improved Bonner high-pressure eccentric screen ... would do away with the crossover joint"). The Board's analysis for Claim 29 **maintains** *Yeh's* crossover tool, leaving a concentric screen upstream of *Bonner's* eccentric screen. FWD, 31. The FWD nowhere explains the motivation to modify *Bonner's* eccentric screen to withstand operating pressures over 5,000 psi while maintaining the crossover joint (FWD, 29-31), which transitions to concentric screens that were more than capable of operation above 5,000 psi (Pet., 21-22, 41).

The FWD concludes a POSITA could have modified *Bonner's* screen for high pressure operation, but nothing in the record suggests modifying *Bonner's* screen to operate above 5,000 psi, and the prior art consistently limits eccentric screens to approximately 3,000 psi. The facts do not support the FWD's finding for Claim 30.

C. Substitute Claim 33: The FWD misconstrued Claim 33 and offered no rationale for its erroneous construction.

Substitute Claim 33 recites "a packing tube of the high pressure shunt tube system" "interconnected to a shunt tube junction block of the low pressure shunt tube system." The parties dispute construction of the term "interconnected." PO construes an "interconnected" packing tube as establishing fluid communication with the downstream junction block, a feature not in the prior art. Paper 30, 7-9.

The FWD “agrees with Petitioner that the plain language” of Claim 33 prevents reading “additional features into the claim.” FWD, 33. But Petitioner never argued Claim 33’s “plain language” governs (Paper 26, 17; Paper 33, 5-7), and the FWD does not explain why the plain language supports Petitioner (FWD, 33). Petitioner instead argued that PO’s construction requires fluid communication through the packing tube “distal end” and *the specification* does not disclose that feature. Paper 33, 6-7. The claim language, standing alone, cannot resolve the disputed construction. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1315 (Fed. Cir. 2005) (“The claims ... do not stand alone.”).

And the '007 specification supports PO’s construction. To oppose PO’s construction, which relies on disclosures related to Figure 2, Petitioner argues Figure 2 “does not contain a junction block.” Paper 33, 7. The specification states just the opposite: “[e]ach shunt tube assembly described herein, including shunt tube assemblies 220 of Figure 2, generally include ... a junction block.” Paper 37, 44:10-25; EX1001, 6:47-51. The Director should reverse the FWD as to Claim 33 because (1) the Board’s reliance on Claim 33’s plain language cannot resolve the dispute and (2) Petitioner’s argument directly contradicts the specification.

Moreover, Petitioner actually agreed Claim 33 requires a packing tube “fluidly connected to a downstream [] junction block.” Paper 33, 6. The prior art, however, does not establish fluid connection because prior art packing tubes do not

connect to the downstream junction block. Paper 30, 8-9 (annotating absence of connection); EX2014, ¶¶74-88. And although Petitioner argues a packing tube is “fluidly connected” to a downstream junction block “via transport tubes” (Paper 33, 6; FWD, 33), Dr. Durham clearly explained that, as shown in *Bonner* Figures 8 and 42, fluid flows into the packing and transport tubes from an upstream junction block, not from the packing tube to a transport tube (EX2014, ¶¶84-87).

Petitioner also makes much of the RMTA citing Figure 3 as 112 support for Claim 33, arguing Figure 3 precludes PO's construction. Paper 33, 6. But the RMTA also cited Figure 2, and the RMTA cited support for “both the proposed amendments and the existing limitations.” Paper 21, 5, 15-16. Claim 33 is not limited to Figure 3.

III. CONCLUSION

The FWD erred in finding Original Claim 14 and Substitute Claims 29-31 and 33 unpatentable. Including dependent claims, PO requests that the Director reverse the FWD as to Original Claims 14-20 and Substitute Claims 29-30, or as to Substitute Claims 29-37 if the Director finds Original Claim 14 unpatentable.

Date: January 8, 2026

Respectfully submitted,

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that on January 8, 2026, a complete and entire copy of the foregoing **Patent Owner's Request for Director Review** was served upon the following email addresses to the counsel of record for the Petitioner as follows:

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