

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GCE GAS CONTROL EQUIPMENT INC.,
Petitioner,

v.

VBOX, INC.,
Patent Owner.

IPR2023-00527
Patent 10,357,628 B2

Before GRACE KARAFFA OBERMANN, ELIZABETH M. ROESEL, and
JANE E. INGLESE, *Administrative Patent Judges*.

INGLESE, *Administrative Patent Judge*.

DECISION

Denying Petitioner's Request for Rehearing
37 C.F.R. § 42.71(d)

I. INTRODUCTION

GCE Gas Control Equipment Inc. (“the Petitioner”) filed a Petition (Paper 1, “Pet.”) for *inter partes* review of claims 1–23 (the “challenged claims”) of U.S. Patent No. 10,357,628 B2 (Ex. 1001, “the ’628 patent”). VBOX, Inc. (“the Patent Owner”) filed a Preliminary Response. Paper 6 (“Prelim. Resp.”). With Board pre-authorization, the Petitioner filed a Reply (Paper 7, “Reply”) and the Patent Owner filed a Sur-reply (Paper 9, “Sur-reply”), limited to addressing particular issues. Ex. 1080, 1–2 (e-mail correspondence with the Board).

We issued a Decision denying institution of *inter partes* review, and the Petitioner filed a Request for Rehearing of our Decision. Paper 9 (“Institution Decision” or “Dec.”); Paper 10 (“Request”).

II. STANDARD OF REVIEW

The party challenging a decision in a request for rehearing bears the burden of showing the decision should be modified. 37 C.F.R. § 42.71(d) (2019). A request for rehearing “must specifically identify all matters the party believes the Board misapprehended or overlooked, and the place where each matter was previously addressed.” 37 C.F.R. § 42.71(d). When rehearing a decision on a petition, the decision will be reviewed for an abuse of discretion (37 C.F.R. § 42.71(c) (2020)), which occurs when a “decision was based on an erroneous conclusion of law,” “clearly erroneous factual findings,” or “a clear error of judgment.” *PPG Indus. Inc. v. Celanese Polymer Specialties Co.*, 840 F.2d 1565, 1567 (Fed. Cir. 1988) (citations omitted).

We deny the Petitioner’s Request for Rehearing because the Petitioner does not establish that we abused our discretion in denying institution of *inter partes* review of the challenged claims of the ’628 patent.

III. BACKGROUND

Independent claims 1 and 11 of the ’628 patent both recite a portable oxygen concentrator comprising, in part, a separation cartridge including an inlet, an outlet, and a bed of adsorbent material. Both claims require the separation cartridge to be selectively removable from a receptacle by movement relative to the receptacle in a first direction, and require the inlet and outlet to be oriented in a second direction opposite the first direction. In this Rehearing Decision, we refer to this element of the independent claims as the “removal direction limitation.”

In the Petition, the Petitioner argued that Deane alone renders obvious the removal direction limitation, and in so doing, identified the “first direction” in Deane as downward, and the “second direction” as upward. Pet. 47–49. The Petitioner argued for the first time in the Reply that a combination of Deane and Berntson teaches the relative movement limitation. Reply 4. The Patent Owner argued that the Petitioner did not show that Deane, or a combination of Deane and Berntson, discloses the removal direction limitation. Prelim. Resp. 35–36; Sur-reply 3–4. In our Institution Decision, we determined that the Petitioner did not provide sufficient information to show that Deane or a combination of Deane and Berntson discloses or would have suggested the removal direction limitation. Dec. 17–23.

IV. DISCUSSION

The Petitioner presents three main arguments in the Request: (1) our Institution Decision misapprehended that the scope of the removal direction limitation includes cartridge removal after partial disassembly of the oxygen concentrator, and Deane’s teaching thereof (the “partial disassembly” argument); (2) our Institution Decision misapprehended that the scope of the removal direction limitation includes relative movement between the receptacle and cartridge, and Deane’s teaching thereof (the “relative movement” argument); and (3) our Institution Decision misapprehended facts demonstrating that “the Deane/Berntson combination” renders obvious the removal direction limitation (the “Deane/Berntson combination” argument). Request 2, 8–9, 11. We address each argument in turn.

A. *The “Partial Disassembly” Argument*

The Petitioner argues that “[t]he record shows the proper scope of the removable cartridge limitation must include, as applied by the Petition, selective removability of the cartridge from the receptacle after disassembly of other components of claim 1/11’s concentrator.” Request 2 (citing Pet. 47–55; Ex. 1003 ¶¶ 335–352). Elaborating, the Petitioner argues that “the removable cartridge limitation, properly construed, covers situations . . . where Deane’s cartridge (e.g., housing 602)¹ is removed in a first direction

¹ The Petitioner indicated in the Petition that a combination of Deane’s housing 602 and adsorbent columns 508a, 508b corresponds to the recited separation cartridge. Pet. 49–50, 55–56. Although the Petitioner refers to “e.g., housing 602” as corresponding to “Deane’s cartridge” throughout the Request for Rehearing, the Petitioner nonetheless also reproduces and cites a statement in the Petition indicating that housing 602/adsorbent bed columns 508a, 508b correspond to the recited separation cartridge. Request 7 (citing Pet. 54–55). We, therefore, understand the Petitioner to rely on a

from [a] receptacle (e.g., manifold 512)² after the cartridge and receptacle are first removed from Deane's chassis 202 as part of removable PSA unit 506." *Id.* at 3 (emphasis omitted).

The Petitioner contends that not applying this claim "scope" and "reading of Deane" in our Institution Decision misapprehends six "facts," each of which we address below. *Id.* at 3.

We point out initially, however, that the Petitioner did not present the "partial disassembly" argument in the pages of the Petition cited in the Request. Nor did Dr. Knaebel discuss "partial disassembly" in the cited paragraphs of his Declaration³ (discussed more fully below). The Petitioner briefly discussed partial disassembly of Deane's gas fractionation apparatus only in the Reply, which we address below. Reply 3–4.

As to the first asserted "fact," contrary to the Petitioner's argument, the paragraphs of Dr. Knaebel's Declaration cited in the Request do not indicate that the scope of the removal direction limitation includes the "'partial disassembly' aspect." Request 3 (citing Ex. 1003 ¶¶ 232, 260–285, 336–352). The cited paragraphs of the Knaebel Declaration simply do not discuss partial disassembly within the context of interpreting claims 1 and 11, much less interpret the scope of the recited removal direction limitation to include the asserted "'partial disassembly' aspect." As for the

combination of Deane's housing 602 and adsorbent columns 508a, 508b as corresponding to the recited separation cartridge.

² In the Petition, the Petitioner advanced the alternative positions that either Deane's manifold 512, or a combination of Deane's manifold 512, the inner portion of shell 204, circuit board 1314, "and/or other intervening components," correspond to the recited "receptacle." Pet. 41, 43, 46.

³ Declaration of Kent S. Knaebel, Ph.D. (hereafter, "Declaration").

Declaration's discussion of Deane, the closest the cited paragraphs come to addressing "partial disassembly" is a statement that Deane's Figures "illustrate an *assembly* direction along the axis of adsorbent housing 602/adsorbent bed columns 508a, 508b." Ex. 1003 ¶ 352 (citing Deane Figs. 3, 4, 5, 8, 11, 13, 14, 15) (emphasis added). This statement falls far short of opining that Deane teaches removing adsorbent housing 602/adsorbent bed columns 508a, 508b from manifold 512 following partial disassembly of Deane's gas fractionalization apparatus, much less teaching removal following partial disassembly by movement of adsorbent housing 602/adsorbent bed columns 508a, 508b relative to manifold 512 in a downward (first) direction. In any event, the Petitioner did not present this argument clearly, if at all, in the Petition or Reply, and, therefore, we could not have misapprehended or overlooked it in our Institution Decision.

As to the second "fact," the Petitioner mischaracterizes the prosecution history of the '504 application, which issued as the '669 patent, the parent of the '628 patent. Although during prosecution of the '504 application the Examiner indicated in a Notice of Allowability that Deane '426⁴ was "[t]he closest prior art to new claims 24–42," the Examiner did not apply Deane '426 as a prior art reference in any Office Action. Ex. 1052, 16, 162–203, 289–314, 381–399, 490–509, 553–569. The Petitioner's assertion in the Request that "the '669 patent's Examiner found the removable cartridge limitation did not differentiate from Deane," is, therefore, incorrect. Request 3.

⁴ The Petitioner indicated in the Petition that Deane '426 has "the same relevant teachings as Deane." Pet. 6.

Although the Petitioner discusses a third “fact” related to the Patent Owner’s contentions “in the related district court matter” that “confirms the Petition’s reading of the removable cartridge limitation is correct” (Request 4), the Petitioner did not make this argument in the Petition or in the Reply. A request for rehearing is not an opportunity to present new arguments or evidence that could have been presented in a petition. We could not have misapprehended or overlooked this argument because it was not asserted in the Petition or Reply.

Even if this argument were timely, we interpret claims “using the same claim construction standard that would be used to construe the claims in a civil action held under 35 U.S.C. 282(b).” 37 C.F.R. § 42.100(b). Under that standard, claim terms generally are given their plain and ordinary meaning as would have been understood by the ordinarily skilled artisan at the time of the invention when read in the context of the specification and prosecution history. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc). Claim construction is a matter of law for the Board to decide and, therefore, the Patent Owner’s contentions “in the related district court matter” would not control the Board’s claim interpretation. *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 373 (1996).

And fourth, although the Petitioner asserts that “the ’628 patent’s specification does not limit the removable cartridge limitation to ‘selectively removable’ before disassembly of other portions of its concentrator” (Request 4), the Petitioner did not make this argument in the Petition or in the Reply. We again point out that a request for rehearing is not an opportunity to present new arguments or evidence that could have been

presented in a petition. We could not have misapprehended or overlooked this argument because it was not asserted in the Petition or Reply.

As to the fifth “fact,” which is similar to the fourth “fact” discussed above, the Petitioner argues that “the ’628 patent’s file history confirms the Petition’s construction.” Request 4–5. Again, however, the Petitioner did make this argument in either the Petition or the Reply, and we, therefore, could not have misapprehended or overlooked it.

As to the sixth “fact,” the Petitioner argues that “the Petition shows Deane teaches the removable cartridge limitation while applying a scope utilizing the partial disassembly aspect.” Request 5. The Petitioner argues that “Deane teaches its cartridge (e.g., housing 602) is removable from its receptacle (e.g., manifold 512) in a first direction along the cartridge’s axis in view of their respective geometries after the PSA unit containing these components is removed from Deane’s chassis.” *Id.* at 6 (citing Pet. 49, 54–55; Ex. 1003 ¶ 337, 352). The Petitioner asserts that page 49 of the Petition supports this argument, and indicates in the Request that this page of the Petition includes an “annotated figure showing sequential disassembly, including the FIG. 6/8 relationship after PSA unit 506 is unmounted.” *Id.*

At no point in the pages of the Petition cited in the Request, or in the cited paragraphs of the Declaration, however, does the Petitioner or the Declarant indicate that Deane’s Figures 6 and 8 show “sequential disassembly,” or any type of “disassembly.” Rather, as discussed above, the closest the Knaebel Declaration comes to discussing “partial disassembly” occurs in paragraph 352, which states that Deane’s Figures “illustrate an *assembly* direction along the axis of adsorbent housing 602/adsorbent bed

columns 508a, 508b.” Ex. 1003 ¶ 352 (citing Deane Figs. 3, 4, 5, 8, 11, 13, 14, 15) (emphasis added).

The Petitioner, therefore, does not demonstrate that our Institution Decision was based on a misapprehension of the six asserted “facts,” such that the Decision was based on clearly erroneous factual findings.

The Petitioner further argues that our Institution Decision’s “factual findings do not support denial when the removable cartridge limitation is properly construed” for three reasons, “demonstrating each to be a misapprehension.” Request 6.

First, the Petitioner argues that our Institution Decision’s basis for finding that Grounds 1 and 4 “are deficient”—“Deane’s resting on a surface”—is “irrelevant” because when Deane’s “PSA unit 506 is removed from the chassis before the cartridge (*e.g.*, housing 602) is removed from the receptacle (*e.g.*, manifold 512) in the first [downward] direction . . . , Deane’s chassis would not be in the way.” *Id.* (emphasis omitted).

As an initial matter, we observe that this argument was not presented in either the Petition or the Knaebel Declaration. Rather, for the first time in the Reply, the Petitioner argued that Deane’s chassis would not interfere with movement of Deane’s separation cartridge in the first (downward) direction because manifold/cartridge is “discretely removable” from the chassis, and such removal could occur before disconnection of manifold/cartridge and movement of cartridge in the first (downward) direction. Reply 3 (citing Pet. 54–55, Ex. 1003 ¶ 352).

In presenting this argument in the Reply, the Petitioner did not identify any disclosure in Deane indicating that Deane’s manifold/cartridge is “discretely removable” from Deane’s chassis. Reply 3–4. Although the

Petitioner, for the first time in the Request, refers to paragraph 352 of the Knaebel Declaration as “citing annotated figures showing disassembly, including the FIG. 6/8 relationship after PSA unit 506 is unmounted” (Reply 3), this paragraph of the Declaration actually states (as discussed above) that Deane’s Figures “illustrate an *assembly* direction along the axis of adsorbent housing 602/adsorbent bed columns 508a, 508b.” Ex. 1003 ¶ 352 (citing Deane Figs. 3, 4, 5, 8, 11, 13, 14, 15) (emphasis added). In sum, the Petitioner’s argument, as presented in the Reply, is unsupported by record evidence and, thus, conclusory, and in the Request, the Petitioner raises newly cited evidence that is ineffective to bolster that conclusory argument.

Nonetheless, even if we accept Petitioner’s belated argument that the cited record evidence supports the view that Deane’s manifold/cartridge is “discretely removable” from Deane’s chassis, this argument is insufficient to show material error in the Institution Decision because the Petitioner did not explain adequately in the Reply how and why one of ordinary skill in the art would have understood Deane to teach or suggest that Deane’s cartridge would be selectively removable from Deane’s receptacle by downward movement of the cartridge relative to the receptacle following removal of the manifold/cartridge from the chassis. For example, the Petitioner did not explain how, once removed from the chassis, the cartridge/manifold would be supported in a way that would allow downward movement of the cartridge relative to the receptacle. As we explained in our Institution Decision, Deane teaches that the chassis supports the cartridge/manifold, and if removed from the chassis, the cartridge/manifold would still require support. Dec. 20–21; *see also* Deane ¶ 58 (“the components in the housing 206 are structurally supported by the chassis 202”). The Petitioner did not

explain how, if the cartridge/manifold is not supported by the chassis, the cartridge/manifold could be supported in a way that would allow the cartridge to be moved downward relative to the receptacle in order to remove the cartridge from the receptacle. The Petitioner's argument, therefore, does not establish that our Institution Decision was based on clearly erroneous factual findings or an erroneous conclusion of law.

Second, the Petitioner argues that our Institution Decision's "finding that Grounds 1/4 are deficient because the Petition shows housing 602 is removable from manifold 512 "in an axial direction rather than a lateral direction" does not comport with the Petition's actual showing." Request 7 (citing Dec. 20–21). The Petitioner argues that "the Petition does not simply state Deane teaches removal in an 'axial direction;' it demonstrates removal in a first direction along the axial direction and illustrates the first direction with a red '1st' arrow in the annotated figures on Petition pp. 52 and 56." *Id.* (emphasis omitted).

Contrary to the Petitioner's argument, our Institution Decision addressed the Petitioner's assertion that Deane teaches removal of the asserted cartridge along the "1st" (downward) direction. Dec. 21. Specifically, our Institution Decision indicated that:

The Petitioner does not explain how or why Deane discloses or would have suggested that the asserted separation cartridge (adsorbent housing 602/adsorbent bed columns 508a, 508b) is selectively removable from the asserted receptacle (manifold 512 or a combination of manifold 512 and the inner portion of shell 204) by ***movement of the separation cartridge*** relative to the receptacle in a direction opposite the direction in which opening 706 of feed tube 608 (inlet) and filter portion 618a at upper end 604 of adsorbent bed column 508a (outlet) are oriented. In other words, if Deane's inlet and outlet are both

oriented upward (the “second direction”), as the Petitioner contends, then the Petitioner does not provide sufficient information and explanation to demonstrate that Deane’s asserted separation cartridge is removable from the asserted receptacle by movement of the receptacle relative to the separation cartridge in the opposite direction, i.e., downward.

Dec. 21.

Our Institution Decision, therefore, was not based on an understanding of the Petitioner’s argument as being limited to an assertion that Deane teaches movement in an axial rather than lateral direction.

For the third “misapprehension,” the Petitioner presents a hypothetical analysis that the Petitioner acknowledges is “not expressed in the ID [Institution Decision].” Request 7–8. Such discussion of a hypothetical, however, which is not based on the actual content of our Institution Decision, is inappropriate for presentation in a Request for Rehearing. 37 C.F.R. § 42.71(d).

The Petitioner’s “partial disassembly” argument, therefore, does not show that our Institution Decision was based on erroneous conclusions of law, clearly erroneous factual findings, or clear errors of judgment, such that we abused our discretion in denying institution.

B. *The “Relative Movement” Argument*

The Petitioner argues that “‘movement relative to’ as recited in claims 1 and 11 must encompass relative movement of the cartridge vis-à-vis the receptacle.” Request 9 (citing Pet. 47–55; Ex. 1003 ¶¶ 335–352). The Petitioner argues that “[r]elative movement is a commonly-used physics/engineering term that defines movement relative to a particular frame of reference,” and “[i]n the context of two objects, a first object may move “relative to” a second object’s frame of reference (i.e., from the

second object's perspective) by, e.g., moving the first object away from the second, moving the second away from the first, or moving both from each other." *Id.* (emphasis omitted).

The Petitioner contends that "the removable cartridge limitation's scope covers situations where" Deane's receptacle (manifold 512) "moves in the second direction away from a stationary cartridge (e.g., adsorbent housing 602)," which would occur when "manifold 512 is removed from housing 602 that remains mounted to Deane's chassis 202." *Id.* The Petitioner argues that "[i]n this case, the cartridge moves in the first direction in the receptacle's frame of reference (e.g., from the receptacle's point of view), which falls within 'movement relative to' as properly construed." *Id.* (emphasis omitted).

The Petitioner asserts that not applying this meaning of "movement relative to" in our Institution Decision misapprehended claim construction law and numerous facts. *Id.* at 9–11. We have considered each of the asserted misapprehended facts and claim construction law, but do not address them individually in this Rehearing Decision because each is premised on the Petitioner's interpretation of "movement relative to," which we address below.

We point out initially that the Petitioner presented the "relative movement" argument for the first time in the Reply and did not discuss "relative movement" in the pages of the Petition and paragraphs of the Knaebel Declaration cited in the Request. Reply 1. Instead, the cited portions of both documents discuss removal of Deane's adsorbent housing 602/adsorbent bed columns 508a, 508 b (cartridge) from Deane's manifold 512 (receptacle) by movement of adsorbent housing 602/adsorbent bed

columns 508a, 508 b (cartridge) in the “1st” (downward) direction. Pet. 47–55, particularly 54–55; Ex. 1003 ¶¶ 335–352, particularly ¶ 352. At no point do the cited pages of the Petition or the cited paragraphs of the Declaration discuss movement of Deane’s manifold 512 (receptacle) in the second (upward) direction as meeting the “movement relative to” limitation of claims 1 and 11. That circumstance, standing alone, fully supports a determination that this argument is insufficient to show a material error in our Institution Decision.

In any event, the Petitioner does not provide any evidence or authority to support the Petitioner’s asserted meaning of “relative movement,” particularly as it relates to claims 1 and 11. Even if we were to accept the Petitioner’s asserted meaning of “relative movement,” the phrase “relative movement” is not recited in claims 1 and 11. The phrase actually recited in claims 1 and 11—“movement relative to” —does not occur in isolation in these claims. To properly interpret “movement relative to” in the context of the phrase’s use in claims 1 and 11, the phrase must be considered in light of the claim language as a whole when read in the context of the specification and prosecution history. *Phillips*, 415 F.3d at 1313; *Hockerson-Halberstadt, Inc. v. Converse Inc.*, 183 F.3d 1369, 1374 (Fed. Cir. 1999) (“Proper claim construction, however, demands interpretation of the entire claim in context, not a single element in isolation.”). The Petitioner’s interpretation of “relative movement” falls far short of meeting this standard for “movement relative to” as recited in claims 1 and 11, a circumstance that provides an independent, alternative basis for a determination that this argument is insufficient to show a material error in our Institution Decision.

The Petitioner’s “relative movement” argument, therefore, does not show that our Institution Decision was based on erroneous conclusions of law, clearly erroneous factual findings, or clear errors of judgment, such that we abused our discretion in denying institution.

C. *The “Deane/Berntson Combination” Argument*

The Petitioner argues that “the Petition’s Deane/Berntson combination shows the obviousness of the removable cartridge limitation” when applying a claim construction “requiring physical movement of a cartridge away from a receptacle,” and our Institution Decision’s supposed determination to the contrary misapprehends numerous “facts.” Request 11–15. We have considered each of the asserted misapprehended facts, but do not address them individually in this Rehearing Decision because each is premised on an issue we addressed in our Institution Decision, which we reiterate below.

As our Institution Decision explained, although the Petitioner vaguely proposed “applying *Berntson*’s basic teachings to *Deane*,” the Petitioner did not identify with any degree of particularity the “basic teachings” of *Berntson* that a person of ordinary skill in the art would have applied to *Deane*, much less provide any detail as to the specific modifications of *Deane*’s portable oxygen concentrator that would result from “applying *Berntson*’s basic teachings to *Deane*.” Dec. 21–22. Without this information, we had no understanding of the details of the Petitioner’s proposed modification of *Deane*’s apparatus; consequently, we were unable discern whether “applying *Berntson*’s basic teachings to *Deane*” would result in modifying *Deane*’s apparatus in a manner that would result in an apparatus meeting the removal direction limitation of claims 1 and 11. *Id.*; see, e.g., *Microsoft Corp. v. FG SRC, LLC*, 860 Fed. Appx. 708, 713 (Fed.

Cir. 2021) (“It is not the Board’s job to cobble together assertions from different sections of a petition or citations of various exhibits in order to infer every possible permutation of a petitioner’s arguments. Arguments in a petition must be made with particularity, not opacity”).

Finally, we note that the Petitioner asserts in the Request that we misapprehended the Petitioner’s statement of “and further to the above” in the Petition. Request 14–15. The Petitioner asserts that this phrase “applies” the Petition’s analysis of the removable cartridge limitation’s first part (“a separation cartridge selectively removable from the receptacle”) to the limitation’s second part (“by movement relative to the receptacle in a first direction”). *Id.* Reliance on the phrase “and further to the above” to apply analysis of one claim element to another, however, lacks the specificity necessary to indicate this intention. The phrase is simply too general to convey any such meaning.

The Petitioner’s “Deane/Berntson combination” argument, therefore, does not show that our Institution Decision was based on erroneous conclusions of law, clearly erroneous factual findings, or clear errors of judgment, such that we abused our discretion in denying institution.

V. CONCLUSION

The Petitioner has not demonstrated that we abused our discretion in declining to institute *inter partes* review of claims 1–23 of the ’628 patent.

VI. ORDER

For the reasons given, it is:

ORDERED that the Petitioner’s Request for Rehearing is denied.

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