

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GUANGDONG ALISON HI-TECH CO., LTD.,
Petitioner,

v.

ASPEN AEROGELS, INC.,
Patent Owner.

Case IPR2017-00413
Patent 7,078,359 B2

Before JON B. TORNQUIST, CHRISTOPHER M. KAISER, and
MICHELLE N. ANKENBRAND, *Administrative Patent Judges*.

KAISER, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
37 C.F.R. § 42.108

INTRODUCTION

A. Background

Guangdong Alison Hi-Tech Co., Ltd. (“Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting *inter partes* review of claims 1–3, 5–7, 9, and 49 of U.S. Patent No. 7,078,359 B2 (Ex. 1001, “the ’359 patent”). Aspen Aerogels, Inc. (“Patent Owner”) filed a Preliminary Response (Paper 7, “Prelim. Resp.”).

We have authority to determine whether to institute an *inter partes* review. 35 U.S.C. § 314(b); 37 C.F.R. § 42.4(a). The standard for instituting an *inter partes* review is set forth in 35 U.S.C. § 314(a), which provides that an *inter partes* review may not be instituted unless “there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.”

After considering the Petition, the Preliminary Response, and the evidence currently of record, we determine that Petitioner has not demonstrated that there is a reasonable likelihood that it would prevail with respect to at least one of the claims challenged in the Petition. Accordingly, we do not institute *inter partes* review.

B. Related Matters

The parties note that the ’359 patent is at issue in *Certain Composite Aerogel Insulation Materials and Methods for Manufacturing the Same*, USITC Inv. No. 337-TA-1003 (June 2, 2016). Pet. 2; Paper 3, 2.

C. The Asserted Grounds of Unpatentability

Petitioner contends that claims 1–3, 5–7, 9, and 49 of the ’359 patent are unpatentable based on the following grounds (Pet. 21–57):¹

Statutory Ground	Basis	Challenged Claim(s)
§ 102	Ramamurthi ²	1–3, 5–7, and 49
§ 102	Ryu ³	1–3, 5–7, and 49
§ 102	Sonoda ⁴	1–3, 5, 6, and 49
§ 103	Sonoda and Ramamurthi	7
§ 103	Sonoda and Ryu	7
§ 103	Ramamurthi	9
§ 103	Ryu	9
§ 103	Sonoda and Ramamurthi	9
§ 103	Sonoda and Ryu	9

D. The ’359 Patent

The ’359 patent, titled “Aerogel Composite with Fibrous Batting,” issued on July 18, 2006. Ex. 1001, at [45], [54]. The ’359 patent relates to “aerogel composites” that “exhibit[] improved performance in one or more” areas, including “improved flexibility and drapeability; improved durability; [and] decreased aerogel particle shedding.” *Id.* at 1:10–21. The ’359 patent explains that “prior aerogel composite materials have not been suitable for many uses due to one or more of: low flexibility, low durability, excessive

¹ Petitioner also relies on a declaration from George W. Scherer, Ph.D. Ex. 1003.

² Ramamurthi et al., U.S. Patent No. 5,306,555, issued Apr. 26, 1994 (Ex. 1004, “Ramamurthi”).

³ Ryu, U.S. Patent No. 6,068,882, issued May 30, 2000 (Ex. 1005, “Ryu”).

⁴ Sonoda et al., Japanese Patent Application Publication No. H08-34678A, published Feb. 6, 1996 (Ex. 1006) (translation provided as Ex. 1007, “Sonoda”).

aerogel sintering when exposed to heat, less than ideal thermal conductivity, insufficient x-y thermal and/or electrical conductivity, poor RFI-EMI attenuation, and/or insufficient burn-through resistance.” *Id.* at 3:1–6. It is the aim of the ’359 patent to solve these problems. *Id.* at 3:7–15. The ’359 patent describes aerogel composites that have two parts: “reinforcing fibers and an aerogel matrix.” *Id.* at 3:24–26. The “reinforcing fibers are in the form of a lofty fibrous structure.” *Id.* at 3:26–27.

E. Illustrative Claim

Claims 1–3, 5–7, 9, and 49 of the ’359 patent are challenged. Claim 1 is independent and illustrative; it recites:

1. A composite article to serve as a flexible, durable, light-weight insulation product, said article comprising a lofty fibrous batting sheet and a continuous aerogel through said batting.

Ex. 1001, 14:36–39.

ANALYSIS

A. Claim Construction

In an *inter partes* review, we construe claim terms in an unexpired patent according to their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); *see Cuozzo Speed Techs. LLC v. Lee*, 136 S. Ct. 2131, 2144 (2016) (upholding the use of the broadest reasonable interpretation standard). Claim terms generally are given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007).

Petitioner proposes construing two claim terms: “lofty fibrous batting” and “continuous aerogel.” Pet. 16–19. Patent Owner proposes construing the same two terms plus the term “dopant.” Prelim. Resp. 10–17. In addition, both parties agree that the preamble of claim 1 is not a limitation of the claims. Pet. 15–16; Prelim. Resp. 10. For the purpose of this decision, we determine that no term requires express construction. *See Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“only those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy”).

B. Asserted Anticipation by Ramamurthi

Petitioner argues that Ramamurthi anticipates claims 1–3, 5–7, and 49. Pet. 21–32.

1. Ramamurthi

Ramamurthi discloses aerogel matrix composites (AMCs) composed of fibers mixed with an aerogel. Ex. 1004, 1:10–15, 2:3–8, 16:42–47. Ramamurthi explains that, in contrast to monolithic aerogels known in the art that are “extremely fragile and have low elasticities,” the disclosed fiber reinforced AMCs can have a range of flexibilities and possess “enhanced strength, decreased sensitivity to moisture,” and good thermal insulation values. *Id.* at 2:3–8, 3:57–59, Fig. 1 (comparing the properties of fiber reinforced AMCs with “conventional aerogels”). The fibers are added “[t]o enhance the mechanical properties of these sol-gel derived monolithic aerogels.” *Id.* at 4:10–14. Ramamurthi discloses fibers that are in the “form of individual fibers, bundles of fibers, mats or sheets, woven or unwoven.” *Id.* at 4:35–37. Ramamurthi also discloses the use of Corning Pyrex glass

wool and rock wool as materials from which the fibers can be made. *Id.* at 6:49–9:58.

2. *Analysis*

Petitioner argues that all limitations of claims 1–3, 5–7, and 49 are disclosed in Ramamurthi. Pet. 21–32. Patent Owner argues, *inter alia*, that Ramamurthi fails to disclose the “lofty fibrous batting sheet” limitation that is recited in claim 1 of the ’359 patent and is part of every challenged claim. Prelim. Resp. 17–24.

Petitioner relies on Ramamurthi’s disclosure of the use of glass wool and rock wool fibers as its fiber reinforcement materials. Pet. 22–25 (citing Ex. 1004, at [22], 4:10–14, 4:27–29, 6:49–9:58). Based on the testimony of Dr. Scherer, Petitioner argues that the glass wool and rock wool of Ramamurthi are “lofty fibrous batting sheet[s].” *Id.* (citing Ex. 1003 ¶¶ 94–101, 103–07). We are not persuaded that Petitioner has shown sufficiently, for purposes of the present decision, and based on the present record, that Ramamurthi discloses the recited “lofty fibrous batting sheet.”

Although we need not determine the precise construction of “lofty fibrous batting,” we note that both parties agree that this term indicates a fibrous material with both bulk and “resilience,” which is the ability to regain at least some portion of its original shape and size after being compressed. Pet. 16–18; Prelim. Resp. 10–12. Petitioner does not argue that Ramamurthi itself discloses that its glass wool and rock wool have these properties. Pet. 22–25. Instead, Petitioner argues that these are intrinsic properties of the glass wool and rock wool that Ramamurthi discloses. *Id.* at 24 (“the glass wool and rock wool materials described by Ramamurthi have the properties of bulk and resilience”).

Petitioner points to several pieces of evidence that it argues support the determination that Ramamurthi's glass wool inherently possesses both bulk and resilience. First, Dr. Scherer testifies that all glass wool shows these properties. Ex. 1003 ¶ 94 ("Glass wool (and materials like it) are compressible and resilient enough to re-expand back to their original shape. Glass wool may also have low thermal conductivity and low density, qualities that contribute to the 'loftiness' of the fibrous material."). Dr. Scherer does not provide an explanation supporting this conclusion for all types of glass wool or all "materials like it." *Id.* Accordingly, this testimony "is entitled to little or no weight." 37 C.F.R. § 42.65(a).

Dr. Scherer does provide support for the conclusion that a particular model of glass wool, Corning model 3950, is resilient. Ex. 1003 ¶¶ 95–101 (testing a sample of Corning model 3950 for compressibility and resilience). This does not support Dr. Scherer's or Petitioner's conclusion, however, that all types of glass wool are resilient. Nor does it, at least on this record, support the conclusion that the glass wool disclosed in Ramamurthi is resilient. Ramamurthi's glass wool is described as "pyrex glass wool (Corning SiO₂ fibers, 8 µm diameter)." Ex. 1004, 7:20–21. Much of this description matches the description of Corning model 3950. Ex. 1018, 1 (describing Corning model 3950 as "Glass Wool, PYREX" and having a "[f]iber diameter" of "0.008 mm"). But Ramamurthi describes its glass as constituting individual fibers laid down "in a thin layer," which does not match the product tested by Dr. Scherer. Ex. 1004, 7:34–36. The fact that it would be possible to rearrange Ramamurthi's glass wool fibers into a configuration or arrangement similar to that represented by Corning model 3950, which is resilient, is not sufficient to demonstrate the inherency of

such resiliency in the material disclosed by Ramamurthi. “Inherency . . . may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.” *Therasense, Inc. v. Becton, Dickinson & Co.*, 593 F.3d 1325, 1332 (Fed. Cir. 2010) (citing *Cont’l Can Co. USA, Inc. v. Monsanto Co.*, 948 F.2d 1264, 1269 (Fed. Cir. 1991)).

Much the same is true of Petitioner’s argument with respect to the rock wool disclosed in Ramamurthi. Dr. Scherer testifies that a particular type of rock wool, “Roxul rock wool,” has the properties of bulk and resilience and “is representative of rock wools available at the time the ’359 patent’s application was filed.” Ex. 1003 ¶¶ 102–07. Even if the vast majority of rock wools had properties similar to those of the sample of Roxul rock wool Dr. Scherer tested, the fact that Roxul rock wool possessed bulk and resilience is not sufficient to demonstrate the inherency of bulk and resilience in the rock wool disclosed by Ramamurthi. *Therasense*, 593 F.3d at 1332. Moreover, it is not clear what support, if any, Dr. Scherer has for the statement that Roxul rock wool is representative of other rock wools, or even precisely what it means for Roxul rock wool to be representative of a class of rock wools.

Petitioner also argues that the thermal conductivity and porosity of Ramamurthi’s materials demonstrates that those materials are “lofty fibrous batting sheet[s].” Pet. 22–23 (citing Ex. 1004, 6:49–9:58). But neither Petitioner nor Dr. Scherer explains at what porosity, density, or thermal conductivity a material transitions from “not lofty” to “lofty.” Pet. 23; Ex. 1003 ¶ 94 (explaining only that “low thermal conductivity and low density . . . contribute to the ‘loftiness’ of the fibrous material”). This makes

it difficult to determine whether the materials of Ramamurthi are lofty or not. To the extent that Petitioner wishes to rely on this argument, the failure to explain it fully violates 37 C.F.R. § 42.104(b)(4).

We determine that Petitioner has not shown sufficiently that Ramamurthi discloses the “lofty fibrous batting sheet” that is recited in claim 1 of the ’359 patent and is part of every challenged claim. Accordingly, we determine that Petitioner has not demonstrated a reasonable likelihood of prevailing in showing the anticipation of any claim by Ramamurthi.

C. Asserted Anticipation by Ryu

Petitioner argues that Ryu anticipates claims 1–3, 5–7, and 49. Pet. 33–44.

1. Ryu

Ryu relates to “[a] thermal insulation . . . produced by forming aerogels interstitially within a fiber matrix.” Ex. 1005, at [57]. Ryu’s “composite blanket insulation contains extremely low density aerogels formed amongst the interstices of a fibrous blanket matrix.” *Id.* at 1:14–16. The fibrous matrix can be made of materials that “preferably” are “available in the form of a blanket or felt.” *Id.* at 4:44–54. Ryu teaches forming “closely packed aerogels” that are “distributed uniformly throughout the fibrous matrix” and that “substantially completely eliminate[] open spaces in the insulation.” *Id.* at 3:19–21, 4:32–34. These aerogels are formed by “impregnating a fibrous structure with an aerogel precursor such that the precursor forms a liquid phase around each fiber and then immediately supercritically drying the precursor solution to form aerogels distributed

throughout the fibrous matrix such that essentially no fiber—fiber contacts remain.” *Id.* at 2:36–42.

2. Analysis

Petitioner argues that all limitations of claims 1–3, 5–7, and 49 are disclosed in Ryu. Pet. 33–44. Patent Owner argues, *inter alia*, that Ryu fails to disclose the “lofty fibrous batting sheet” and the “continuous aerogel” limitations that are recited in claim 1 of the ’359 patent and are part of every challenged claim. Prelim. Resp. 29–37.

a. Lofty Fibrous Batting Sheet

Petitioner relies on Ryu’s disclosure of fiberglass as a material that can be used to construct its fibrous blanket matrix. Pet. 34–36 (citing Ex. 1005, 4:44–56, 4:59–61, 11:42–44). Based on the testimony of Dr. Scherer, Petitioner argues that the fiberglass blanket of Ryu is a “lofty fibrous batting sheet.” *Id.* (citing Ex. 1003 ¶¶ 146–52). We are not persuaded that Petitioner has shown sufficiently, for purposes of the present decision, and based on the present record, that Ryu discloses the recited “lofty fibrous batting sheet.”

As discussed above, both parties agree that “lofty fibrous batting” indicates a fibrous material with both bulk and “resilience,” which is the ability to regain at least some portion of its original shape and size after being compressed. Pet. 16–18; Prelim. Resp. 10–12. Petitioner does not argue that Ryu itself discloses that its fiberglass material has these properties. Pet. 34–36. Instead, Petitioner argues that these are intrinsic properties of the fiberglass that Ryu discloses. *Id.* at 35 (“fiberglass has bulk and is resilient”).

Petitioner points to several pieces of evidence that it argues support the determination that Ryu's fiberglass inherently possesses both bulk and resilience. First, Dr. Scherer testifies that all fiberglass shows these properties. Ex. 1003 ¶ 146 ("As with the glass wool and rock wool I discussed earlier, fiberglass both has bulk and is resilient."). Dr. Scherer does not provide an explanation supporting this conclusion for all types of fiberglass. *Id.* Accordingly, this testimony "is entitled to little or no weight." 37 C.F.R. § 42.65(a).

Dr. Scherer does provide support for the conclusion that a particular model of glass wool, "Pipe Guard fiberglass manufactured by Wrap On Company Inc.," is resilient. Ex. 1003 ¶¶ 147–52 (testing a sample of Pipe Guard fiberglass for compressibility and resilience). This does not support Dr. Scherer's or Petitioner's conclusion, however, that all types of fiberglass are resilient. Nor does it, at least on this record, support the conclusion that the fiberglass disclosed in Ryu is resilient. Ryu describes its matrix materials as preferably possessing several properties:

The materials suitable for use in forming the fibrous matrix will preferably (1) have adequate temperature and thermal shock resistance, the specific temperature depending upon the environment of the intended use; (2) be chemically non-reactive with any of the aerogel precursors and reactants used; (3) be capable of maintaining structural integrity during supercritical drying process; (4) have a low bulk density, i.e. less than about 0.15, preferably less than about 0.07, g/cc; (5) exhibit thermomechanical compatibility with the other components; and (6) be available in the form of a blanket or felt in large quantities at relatively low cost or capable of being formed into such a blanket or felt. More preferably, the fibrous matrix has a high inherent infra-red opaqueness.

Ex. 1005, 4:44–56. Ryu states that several materials “generally meet[] these features.” *Id.* at 4:59–60. Fiberglass is not listed among these materials, although Ryu uses fiberglass as the matrix material for several of its example embodiments. *Id.* at 11:42–13:32.

Petitioner does not explain why possession of the features of Ryu’s preferred matrix materials makes a material a “lofty fibrous batting.” Ryu’s materials “have a low bulk density” and are “available in the form of a blanket or felt,” but neither Petitioner nor Dr. Scherer explains at what bulk density a material transitions from “not lofty” to “lofty,” or why all blankets or felts would be considered lofty. Pet. 34–35; Ex. 1003 ¶ 94 (explaining that “low density . . . contribute[s] to the ‘loftiness’ of the fibrous material,” but not specifying a critical density at which a material becomes lofty).

We determine that Petitioner has not shown sufficiently that Ryu discloses the “lofty fibrous batting sheet” that is recited in claim 1 of the ’359 patent and is part of every challenged claim.

b. Continuous Aerogel

Petitioner relies on Ryu’s disclosure of “closely packed aerogels” that are “distributed uniformly throughout the fibrous matrix” and that “substantially completely eliminate[] open spaces in the insulation and suppress[] gas conduction heat transfer” to show that Ryu discloses “a continuous aerogel through [the lofty fibrous] batting.” Pet. 36–37 (quoting Ex. 1005, 2:36–42, 3:19–22, 4:32–34). Petitioner argues that this collection of closely packed separate particles of aerogel is “a continuous aerogel” because “thermal conduction occurs through a continuous matrix of aerogel particles with no gaps sufficient to allow conduction through a continuous path through the air.” Pet. 36 (citing Ex. 1003 ¶ 154).

Although we need not determine the precise construction of “continuous aerogel” that constitutes the broadest reasonable interpretation of that term, we note that both parties propose constructions that relate to the physical configuration or construction of the aerogel phase. Petitioner proposes a construction that requires the aerogel to be either monolithic or distributed substantially uniformly throughout the batting, while Patent Owner proposes a construction that requires both of these properties. Pet. 18–19; Prelim. Resp. 12–15. Neither party proposes a construction under which the path through which thermal conduction may occur is relevant. *Id.* Accordingly, Petitioner’s evidence does not support sufficiently a determination that Ryu discloses the “continuous aerogel” that is recited in claim 1 of the ’359 patent and that is part of every challenged claim.

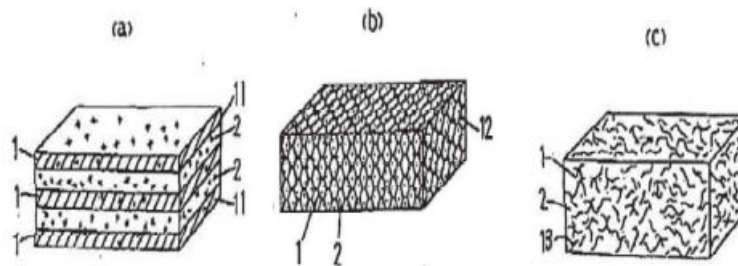
We determine that Petitioner has not demonstrated a reasonable likelihood of prevailing in showing the anticipation of any claim by Ryu.

D. Asserted Anticipation by Sonoda

Petitioner argues that Sonoda anticipates claims 1–3, 5, 6, and 49. Pet. 44–53.

1. Sonoda

Sonoda discloses the production of aerogels. Ex. 1007 ¶¶ 2, 3, 10. Figures 1(a)–(c) of Sonoda are reproduced below:



Figures 1(a)–(c) are perspective views of different aerogel embodiments in Sonoda

In Figure 1(a), cloth 11 and aerogel 2 (formed from a sol-form reaction solution) are alternately layered to form a laminate structure. *Id.* ¶ 27. To form the embodiment depicted in Figure 1(b), a sol-form reaction solution is poured over “glass wool-like block-form fiber aggregate 12” and gelled. *Id.* ¶ 29. To form the embodiment depicted in Figure 1(c), a sol-form reaction solution is mixed with fibers 13 and gelled to form an aerogel panel “in which fibers 13 are used as the fiber body.” *Id.* ¶ 30. In each of these embodiments, gelling of the sol-form reaction mixture is followed by supercritical drying. *Id.* ¶¶ 27, 29, 30. In each embodiment, the fiber body can be made of various materials, including “glass fiber, ceramic fiber, polyester, polyamide or other organic macromolecular compounds.” *Id.* ¶ 25.

2. Analysis

Petitioner argues that all limitations of claims 1–3, 5, 6, and 49 are disclosed in Sonoda. Pet. 44–53. Patent Owner argues, *inter alia*, that Sonoda fails to disclose the “lofty fibrous batting sheet” limitation that is recited in claim 1 of the ’359 patent and is part of every challenged claim. Prelim. Resp. 39–44.

Petitioner relies on Sonoda’s disclosure of the use of “glass wool-like block-form fiber aggregate . . . having voids” with “a density in the range of 0.005–0.5 g/cm³” as its “fiber body.” Pet. 45–46 (citing Ex. 1007, 4:10–14, 4:27–29, 6:49–9:58). Based on the testimony of Dr. Scherer, Petitioner argues that fiber aggregates with this density are “lofty fibrous batting sheet[s].” *Id.* (citing Ex. 1003 ¶¶ 95–101, 196, 197). We are not persuaded that Petitioner has shown sufficiently, for purposes of the present decision,

and based on the present record, that Sonoda discloses the recited “lofty fibrous batting sheet.”

As discussed above, both parties agree that “lofty fibrous batting” indicates a fibrous material with both bulk and “resilience,” which is the ability to regain at least some portion of its original shape and size after being compressed. Pet. 16–18; Prelim. Resp. 10–12. Petitioner does not argue that Sonoda itself discloses that its fiber body has these properties. Pet. 45–46. Instead, Petitioner argues that these are intrinsic properties of the fibers that Sonoda discloses. *Id.* at 46 (“Sonoda’s fibers have bulk and resilience, and are ‘lofty’ within the meaning of claim 1”).

Petitioner points to several pieces of evidence that it argues support the determination that Sonoda’s fiber body inherently possesses both bulk and resilience. First, Dr. Scherer testifies that all “low density glass wool” shows these properties. Ex. 1003 ¶ 197 (“Sonoda’s express instruction to use low density glass wool inherently involves the use of a ‘lofty batting’ as recited by Claim 1.”). Dr. Scherer does not provide an explanation supporting this conclusion for all types of “low density glass wool.” *Id.* ¶¶ 95–101, 197. Accordingly, this testimony “is entitled to little or no weight.” 37 C.F.R. § 42.65(a).

Petitioner next argues that Sonoda’s disclosure of the use of a particular product, Super Fine SPF 210, is disclosure of a “lofty fibrous batting.” Pet. 46 (citing Ex. 1007 ¶ 39); Ex. 1003 ¶ 196. Dr. Scherer testifies that this product “has a density of 0.01 g/cm³.” Ex. 1003 ¶ 196. Dr. Scherer also testifies that, based on this density, Super Fine SPF 210 “inherently ha[s] bulk and resilience, and [is] ‘lofty’ within the meaning of Claim 1.” *Id.* Neither Petitioner nor Dr. Scherer provides support for this

conclusion. We have not been directed to any evidence of record that specifies a point at which a material's density becomes low enough that it can be considered "lofty," as that term has been construed by either party. Nor have we been directed to any evidence of record demonstrating, for example through testing like that which Dr. Scherer performed for glass wool and rock wool, that Super Fine SPF 210 is resilient enough upon compression to be considered "lofty."

We determine that Petitioner has not shown sufficiently that Sonoda discloses the "lofty fibrous batting sheet" that is recited in claim 1 of the '359 patent and is part of every challenged claim. Accordingly, we determine that Petitioner has not demonstrated a reasonable likelihood of prevailing in showing the anticipation of any claim by Sonoda.

E. Asserted Obviousness of Claim 7

Petitioner argues that the subject matter of claim 7 would have been obvious to a person of ordinary skill in the art given the teachings of Sonoda and either Ramamurthi or Ryu. Pet. 53–55. Claim 7 depends from claim 1. Ex. 1001, 14:63–64. Accordingly, claim 7 incorporates all the limitations of claim 1. 37 C.F.R. § 1.75(c). Petitioner's obviousness argument rests on the assertion that "Sonoda discloses all the limitations of claim 1." Pet. 53. As discussed above, however, we determine that Petitioner has not shown sufficiently that Sonoda discloses the "lofty fibrous batting sheet" that is recited in claim 1. Petitioner does not argue that Ramamurthi or Ryu remedies this deficiency. Even if Petitioner had so argued, as discussed above, we determine that Petitioner has not shown sufficiently that either Ramamurthi or Ryu discloses the "lofty fibrous batting sheet" that is recited in claim 1. Because Petitioner's argument for the obviousness of claim 7

relies on Sonoda anticipating claim 1, we determine that Petitioner has not demonstrated a reasonable likelihood of prevailing in showing the obviousness of claim 7 over the combination of Sonoda and either Ramamurthi or Ryu.

F. Asserted Obviousness of Claim 9

Petitioner argues that the subject matter of claim 9 would have been obvious to a person of ordinary skill in the art given the teachings of Ramamurthi, the teachings of Ryu, or the teachings of Sonoda and either Ramamurthi or Ryu. Pet. 55–57. Claim 9 depends from claim 7, which depends from claim 1. Ex. 1001, 14:63–64, 15:3–5. Accordingly, claim 9 incorporates all the limitations of claim 1. 37 C.F.R. § 1.75(c). Petitioner’s obviousness argument rests on the assertions that “claim 1 is anticipated by Ramamurthi, Ryu, and Sonoda” and that “claim 7 is anticipated by Ramamurthi and Ryu, and rendered obvious by Sonoda in combination with either of Ramamurthi or Ryu.” Pet. 55–56. As discussed above, however, we determine that Petitioner has not shown sufficiently that any of Ramamurthi, Ryu, or Sonoda discloses the “lofty fibrous batting sheet” that is recited in claim 1. As for the assertion that “claim 7 is . . . rendered obvious by Sonoda in combination with either of Ramamurthi or Ryu,” Pet. 55–56, as discussed above, we determine that Petitioner has not demonstrated a reasonable likelihood of prevailing in showing the obviousness of claim 7 over the combination of Sonoda and either Ramamurthi or Ryu. Because Petitioner’s argument for the obviousness of claim 9 relies on either (1) Ramamurthi, Ryu, or Sonoda anticipating claim 1 or (2) the combination of Sonoda and either Ramamurthi or Ryu rendering claim 7 obvious, we determine that Petitioner has not demonstrated a

reasonable likelihood of prevailing in showing the obviousness of claim 9 over Ramamurthi, Ryu, or the combination of Sonoda and either Ramamurthi or Ryu.

CONCLUSION

Upon consideration of the Petition, the Preliminary Response, and the evidence before us, we determine that Petitioner has not demonstrated a reasonable likelihood that it would prevail in showing that any claim of the '359 patent is unpatentable on the grounds argued in the Petition. Accordingly, we do not institute *inter partes* review of any claim.

ORDER

It is hereby

ORDERED that the Petition is denied, and no *inter partes* review is instituted.

IPR2017-00413
Patent 7,078,359 B2

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