

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

PHILIP MORRIS PRODUCTS S.A.,
Petitioner,

v.

HEALTHIER CHOICES MANAGEMENT CORP.,
Patent Owner.

IPR2021-01079¹
Patent 10,561,170 B2

Before JO-ANNE M. KOKOSKI, JEFFREY W. ABRAHAM, and
JULIA HEANEY, *Administrative Patent Judges*.

HEANEY, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
Denying Patent Owner's Revised Contingent Motion to Amend
35 U.S.C. § 318(a)

¹ Philip Morris USA, Inc., which filed a petition in IPR2022-00454, has been joined as a petitioner in this proceeding.

I. INTRODUCTION

Philip Morris Products S.A. (“Petitioner”) filed a Petition to institute an *inter partes* review of claims 1–8 of U.S. Patent No. 10,561,170 B2 (Ex. 1001, “the ’170 patent”). Paper 2 (“Petition” or “Pet.”). Healthier Choices Management Corp. (“Patent Owner”) did not file a Preliminary Response. We determined the information presented in the Petition established that there was a reasonable likelihood that Petitioner would prevail in challenging at least one of claims 1–8 of the ’170 patent, and we instituted this *inter partes* review as to all challenged claims. Paper 17 (“Dec. on Inst.”).

During the course of trial, Patent Owner filed a Patent Owner Response (Paper 11, “PO Resp.”); Petitioner filed a Reply to the Patent Owner Response (Paper 18, “Pet. Reply”); Patent Owner filed a Sur-reply (Paper 22, “PO Sur-reply”).

Patent Owner also filed a Contingent Motion to Amend, seeking to cancel claims 1–8 and proposing contingent substitute claims 9–16 if the original claims were found unpatentable. Paper 12 (“MTA”). After we issued Preliminary Guidance on the MTA (Paper 21), Patent Owner filed a Revised Contingent Motion to Amend, seeking to cancel claims 1–8 and proposing contingent substitute claims 9–16 if the original claims were found unpatentable. Paper 23 (“RMTA”). Petitioner filed an Opposition to the RMTA (Paper 26, “Opp. RMTA”); Patent Owner filed a Reply (Paper 30 “Reply RMTA”); and Petitioner filed a Sur-reply (Paper 33 (“Sur-reply RMTA”).

Petitioner filed the Declaration of Seetharama C. Deevi, Ph.D. (Ex. 1003) (“Deevi Declaration”) in support of the Petition. Petitioner also

filed declarations of Dr. Deevi with its Reply (Ex. 1028) and its Opposition to the RMTA (Ex. 1067). Patent Owner filed the Declaration of Charles Garris, Jr., Ph.D. (Ex. 2001) with its Response. Patent Owner also filed a declaration of Dr. Garris (Ex. 2011) in support of its RMTA. The parties also filed transcripts of the depositions of Dr. Deevi (Ex. 2003) and Dr. Garris (Ex. 1034).

An oral hearing was held on October 17, 2022, and a transcript of the hearing is included in the record. Paper 38 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This decision is a Final Written Decision under 35 U.S.C. § 318(a) as to the patentability of claims 1–8 of the ’170 patent. For the reasons discussed below, we hold that Petitioner has demonstrated by a preponderance of the evidence that claims 1–8 are unpatentable and deny Patent Owner’s RMTA.

A. Real Parties-in-Interest

Petitioner identifies itself, Philip Morris Products, S.A., and Philip Morris International, Inc. as the real parties-in-interest. Pet. 79. Patent Owner identifies itself, Healthier Choices Management Corp., as the real party-in-interest. Paper 4.

B. Related Proceedings

The parties identify the following litigation involving the ’170 patent: *Healthier Choices Management Corp. v. Philip Morris USA, Inc.*, No. 1:20-cv-04816 (N.D. Ga. filed Nov. 20, 2020). Pet. 79; Paper 4, 1.

C. The ’170 Patent

The ’170 patent issued from U.S. Patent Application No. 15/923,848, filed March 16, 2018 (“the ’848 application”). The ’170 patent relates to

“cigarette and pipe substitutes” for smoking ingredients that include nicotine. Ex. 1001, [54], 1:16–50. The electronic pipe is depicted in Figure 2 of the ’170 patent, reproduced below.

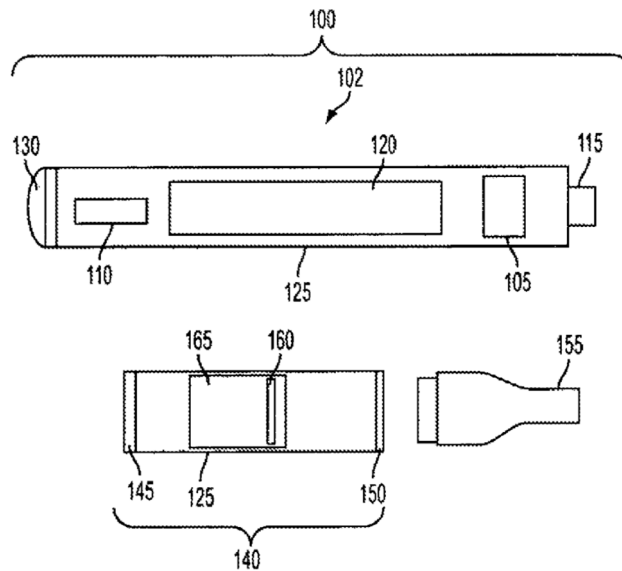


FIG. 2

Figure 2 is a view of an embodiment illustrating electronic pipe 100. *Id.* at 1:64–65, 2:47–48. Electronic pipe 100 has first pipe section 102, second pipe section 140, and mouth piece 155. *Id.* at 1:47–48, 3:15–16, 3:35–36, 4:19–24, 4:60, 5:10. Second pipe section 140 has connector 145 that “is screwed or inserted over or into” charging head 115 of first pipe section 102. *Id.* at 5:59–60. Second pipe section 140 also has receiver 150 that is sized to removably receive mouthpiece 155. *Id.* at 3:34–36.

First pipe section 140 includes printed circuit board 105 located within rechargeable battery 120, and light emitting diode (LED) tip indicator 130 located on a distal end. *Id.* at 2:47–60; 3:3–5; 4:19–51. Printed circuit board 105 “communicates with” various components so that rechargeable battery 120 is enabled “to be charged.” *Id.* at 2:53–59. In lieu of a printed circuit board, first pipe section 102 can include “an integrated circuit, or a

memory module encoded with a program,” or a chip comprising “an electronic assembly that allows communication between various components.” *Id.* at 4:23–28, 6:12–14. Rechargeable battery 120 supplies electricity to various components. *Id.* at 3:6–8, 4:2–8. LED tip indicator 130 illuminates to indicate that rechargeable battery 120 is supplying power to the various components. *Id.* at 4:13–17.

Second pipe section 140 includes heating wire 160 mounted within combustible material reservoir 165. *Id.* at 4:52–60, 5:55–57. Combustible material reservoir 165 receives tobacco “or any other combustible material” loaded therein by a user. *Id.* at 6:6–9. Once connected to charging head 115, second pipe section 140 receives an electric current from rechargeable battery 120 to thereby heat heating wire 160. *Id.* at 4:54–58, 5:17–19. Heating wire 160 “is employed for heating tobacco, or any other desired combustible material” loaded in combustible material reservoir 165. *Id.* at 4:52–54.

Mouthpiece 155 “is intended for insertion into a user’s mouth,” allowing passage of particulate matter. *Id.* at 3:35–36, 5:4–7. In operation, a user activates electronic pipe 100 by pressing a button (not shown in the figures) such that rechargeable battery 120 applies electric current to heating wire 160, which heats and ignites combustible material in combustible material reservoir 165 for inhalation through mouthpiece 155 by the user. *Id.* at 4:52–5:3, 5:53–6:5.

D. The Challenged Claims

Petitioner challenges claims 1–8 (“the challenged claims”) of the ’170 patent. Pet. 1. Claims 1 and 5 are independent claims. Claims 2–4 depend

from claim 1, and claims 6–8 depend from claim 5. Claim 1, reproduced below, is illustrative of the subject matter of the challenged claims:

1. An electronic pipe, comprising:

a battery, an electronic module, a combustible material reservoir, and a heating element fixed in the combustible material reservoir;

combustible material loaded into the combustible material reservoir;

wherein the pipe is structured to transmit an electric current from the battery to the heating element, the heating element initiating a combustion reaction in the combustible material reservoir.

Ex. 1001, 9:36–10:4.

E. Instituted Grounds of Unpatentability

We instituted *inter partes* review on the following grounds of unpatentability, which are all the grounds presented in the Petition. Pet. 2:

Challenged Claims	35 U.S.C.²	Reference(s)/Basis
1, 3, 5, 7	§ 102(b)	Robinson ³
2, 4, 6, 8	§ 103(a)	Robinson alone or Robinson and Hon ⁴
1–8	§ 102(a, e)	Hammel ⁵
1–8	§ 103(a)	Hammel

² The Leahy-Smith America Invents Act (“AIA”) included revisions to 35 U.S.C. § 103 that became effective on March 16, 2013. Because the ’170 patent claims priority from an application filed before March 16, 2013, we apply the pre-AIA versions of the statutory bases for unpatentability.

³ U.S. Patent No. 7,726,320 B2 to Robinson et al., issued June 1, 2010 (Ex. 1005).

⁴ EP 1618803 B1 to Hon, published Dec. 3, 2008 (Ex. 1006).

⁵ U.S. Patent Pub. No. 2012/0160251 A1 to Hammel et al., published June 28, 2012 (Ex. 1007).

II. ANALYSIS

A. *Level of Ordinary Skill in the Art*

Factors pertinent to a determination of the level of ordinary skill in the art include: “(1) educational level of the inventor; (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of workers active in the field.” *Envtl. Designs, Ltd. v. Union Oil Co.*, 713 F.2d 693, 696–697 (Fed. Cir. 1983) (citing *Orthopedic Equip. Co. v. All Orthopedic Appliances, Inc.*, 707 F.2d 1376, 1381–82 (Fed. Cir. 1983)). Not all such factors may be present in every case, and one or more of these or other factors may predominate in a particular case. *Id.*

Petitioner argues a person of ordinary skill in the art at the time of the invention “would have had a Bachelor’s degree in mechanical engineering, electrical engineering, or a related field and two to three years of industry experience, or a Master’s degree in mechanical engineering, electrical engineering, or a related field, and one to two years of industry experience” and “would have been familiar with electrically powered smoking devices and the components and underlying technology used therein.” Pet. 6–7 (citing Ex. 1003 ¶¶ 24–26).

Patent Owner argues that a person of ordinary skill in the art at the time of the invention “would have had a Bachelor’s degree in mechanical engineering, electrical engineering, or a related field, an understanding of combustion reactions in electric smoking articles, and one to three years of practical experience” and would have been “familiar with electrical smoking devices and the components and design considerations thereof.” PO Resp. 8 (citing Ex. 2001 ¶¶ 28–31).

Neither party has responded to the other's position as to the level of ordinary skill, or identified any material difference between their proposals. Having considered the parties' arguments and evidence, we adopt the level of ordinary skill in the art proposed by Patent Owner, because it is consistent with the disclosures of the '170 patent and the prior art of record. We note, however, that neither party contends that any issue in this case turns on the differences between the parties' definitions of one of ordinary skill in the art.

B. Claim Construction

We apply the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. § 282(b). 37 C.F.R. § 42.100(b). Under that standard, claim terms “are generally given their ordinary and customary meaning” as understood by a person of ordinary skill in the art at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303 at 1312–13 (Fed. Cir. 2005) (en banc). “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).

In our Decision on Institution, we determined that we did not need to explicitly construe any claim terms at that stage of the proceeding. Dec. on Inst. 6; see *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (“we need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))). During trial, the parties argued the construction of

several claim terms, including “combustion,” “combustible material,” “combustible material reservoir,” and “heating element fixed in the combustible material reservoir.” *See* PO Resp. 9–11; Pet. Reply 1–6. Having considered the arguments and evidence, and having determined to address patentability of all of the challenged claims based on Hammel alone (*see* § II.F), we address those claim construction arguments that are necessary to resolve the parties’ disputes as to Petitioner’s challenges based on Hammel. *See Nidec*, 868 F.3d 1013, 1017. Thus, we do not construe the terms “combustion” and “combustible material,” because the parties do not dispute that Hammel’s device burns tobacco, which the ’170 patent identifies as a combustible material. Ex. 1001, 3:12–14; *see* Pet. Reply 3–5; PO Resp. 55–63; PO Sur-reply 19–23.

In the tables below, we set forth Petitioner’s and Patent Owner’s positions as to the terms “a combustible material reservoir” and “a heating element fixed in the combustible material reservoir”, and our construction after considering the entire record.

1. “a combustible material reservoir”

Petitioner	Patent Owner	PTAB
ordinary meaning, i.e., a reservoir for combustible material	a reservoir having an air inlet and an air outlet and a chamber for containing a combustible material such that air is drawn into the air inlet, flows through the chamber to facilitate a combustion reaction in the combustible material, and exits through the outlet for inhalation by the user	ordinary meaning, i.e., a reservoir for combustible material

Patent Owner argues that a person of ordinary skill would have understood that a combustion reaction requires oxygen (PO Sur-reply 7), and therefore, airflow through the combustible material reservoir as described in the ’170 patent is required for the combustion reaction to occur. PO Resp. 11 (citing Ex. 2001 ¶¶ 62–64). Patent Owner relies on the following description in the ’170 patent specification as to how the device facilitates air flow through the combustible material reservoir:

only a small hole or aperture (not shown) is located in the second pipe section 140 so that air can be provided to the

combustible material reservoir 165, which is positioned entirely within the second pipe section 140.

PO Resp. 10–11 (citing Ex. 1001, 6:34–38).

Petitioner argues that Patent Owner’s proposed construction imports limitations from a single embodiment of the specification into the claims. Pet. Reply 5–6. Petitioner further argues that the ’170 patent expressly describes reservoirs with attributes different than the embodiment relied on by Patent Owner, such as “the combustible material reservoir 165 may be located on the surface of and extends into the second pipe section 140.” *Id.* (quoting Ex. 1001, 4:57–63; also citing Ex. 1001, Fig. 3, 6:23–45, 9:15–35; Ex. 1028 ¶¶ 48–52).

We decline to adopt Patent Owner’s construction because it improperly reads extraneous limitations into the claim from the specification, “wholly apart from any need to interpret what the patentee meant by particular words or phrases in the claim.” *E.I. du Pont de Nemours v. Phillips Petroleum Co.*, 849 F.2d 1430, 1433 (Fed. Cir. 1988). The ’170 patent discloses multiple embodiments of a combustible material reservoir; Patent Owner does not dispute this. *See* PO Sur-reply 7–8. Further, Patent Owner does not present a sufficient underlying factual basis to support Dr. Garris’s testimony that a person of ordinary skill in the art would understand “combustible material reservoir” as Patent Owner proposes. *See* Ex. 2001 ¶¶ 63–64. Therefore, we are not persuaded that the airflow limitations that Patent Owner reads into “combustible material reservoir” are necessary.

In view of the foregoing, we construe the term “combustible material reservoir” to have its ordinary meaning, i.e., a reservoir for combustible material.

2. “a heating element fixed in the combustible material reservoir”

Petitioner	Patent Owner	PTAB
ordinary meaning	a heating element secured in a position such that the element is within the chamber of the combustible material reservoir and in contact with the combustible material loaded therein	ordinary meaning, i.e., a heating element fixed in the combustible material reservoir

Patent Owner argues that the '170 patent specification supports its proposed construction because it discloses a combustible material reservoir “that includes the heating wire 160 mounted within the combustible material reservoir 165.” PO Resp. 11 (citing Ex. 1001, 5:55–57). Patent Owner further argues that the prosecution history supports its construction because Patent Owner distinguished the Losee⁶ reference by arguing that it does not disclose “a combustible material [reservoir] with a heating element fixed therein in combination with a combustible material that is loaded into the combustible material reservoir.” *Id.* (citing Ex. 1002, 79).

Petitioner does not dispute that the challenged claims expressly recite that the heating element must be fixed in the reservoir. Pet. Reply 6. Petitioner argues that no further limitations should be imported into the construction of “heating element fixed in the combustible material

⁶ U.S. Patent No. 5,095,921, issued March 17, 1992 (Ex. 2004).

reservoir,” because there is no clear indication that Patent Owner intended the claims to be so limited. *Id.* (citing Ex. 1001, 7:13–20, 9:15–35).

Petitioner further argues that the prosecution history concerning Losee does not narrow the meaning of “heating element fixed in the combustible material reservoir.” *Id.* at 7. According to Petitioner, the Examiner expressly found that “Losee teaches a heating element fixed in combustible material reservoir” (*id.* at 6 (citing Ex. 1002, 88)) but allowed the claims over Losee with the following explanation:

[A]lthough Losee teaches a heating element fixed in combustible material reservoir, Losee teaches that the combustible material is fixed to the heater and therefore does not teach or suggest ... a combustible material reservoir that combustible material is loaded into.

Id. at 7 (citing Ex. 1002, 79–80, 88; Ex. 1028 ¶¶ 53–60).

We decline to adopt Patent Owner’s construction because it imports extraneous limitations from the specification into the claim language, without showing that those limitations would be necessary to interpret how a skilled artisan would understand the claim. With regard to the ’170 patent specification, the embodiments of Figures 1–3 that include a heating element for initiating a combustion reaction do not provide any special definition of “fixed” or use that term to describe a structural relationship between the heating element and combustible material reservoir. *See* Ex. 1001, 2:14–6:49. The only description of heating wire 160 in relation to combustible material reservoir 165 is that it is “mounted within” the reservoir. *Id.* at 5:56–57. Further, the specification states

In one embodiment the heating wire 160 may be partially, or completely covered by a protective element (not shown) to protect the heating wire 160 from the combustible material. For

example, a heat resistant screen (not shown) may be placed around portions, or all of, the heating wire.

Id. at 4:65–5:3. This passage describes an embodiment where the heating wire is not in contact with the combustible material; and thus does not support Patent Owner’s proposed construction to the extent it requires that the heating element is “in contact with” the combustible material loaded in the reservoir. We determine that the specification does not provide a basis for limiting the “heating element” claim term beyond its ordinary meaning.

With regard to the prosecution history, Patent Owner’s argument is not persuasive because it is based on an incomplete summary of the prosecution history concerning Losee. As the prosecution history shows, the basis for Patent Owner to distinguish Losee was not only that it does not disclose a heating element within a combustible material reservoir, but also that Losee’s heaters have flavor-generating medium deposited on their surface. Ex. 1002, 79–80. In other words, Patent Owner argued that Losee’s plurality of discrete heaters are each pre-loaded with the combustible material and structurally different from a heating element fixed within a combustible material reservoir. *Id.* Thus, a person of ordinary skill in the art would have understood the Examiner’s finding that Losee teaches “the combustible material is fixed to the heater” (*id.* at 88) was made in the context of Patent Owner’s argument concerning Losee’s structural difference from a heating element fixed within a combustible material reservoir, and not as relating to *how* the heating element was secured in the reservoir.

In view of the foregoing, we construe the term “heating element fixed in the combustible material reservoir” to have its ordinary meaning, i.e., a heating element fixed in the combustible material reservoir.

C. Principles of Law

“Anticipation requires that every limitation of the claim in issue be disclosed, either expressly or under principles of inherency, in a single prior art reference,” *Corning Glass Works v. Sumitomo Elec. U.S.A., Inc.*, 868 F.2d 1251, 1255–56 (Fed. Cir. 1989), and that the claim limitations be “arranged or combined in the same way as recited in the claim[],” *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1371 (Fed. Cir. 2008). However, “the reference need not satisfy an *ipsissimis verbis* test.” *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009).

D. Alleged Anticipation Based on Hammel

Petitioner contends claims 1–8 are anticipated by Hammel. Pet. 49–69. Patent Owner contends Hammel does not disclose how to arrange or combine elements of the challenged claims in the same way as recited in the claims. PO Resp. 55–63. Patent Owner argues claims 1 and 5 together and does not separately argue dependent claims 2–4 and 6–8. Accordingly, we discuss claims 1 and 5 together below, after a discussion of Hammel’s disclosure and any question of enablement.

1. Hammel (Ex. 1007)

Hammel is titled “Electronic Rechargeable Smoking Unit” and relates to an electronic cigarette for smoking tobacco. Ex. 1007 at [54], ¶ 1. Hammel describes that the electronic cigarette’s power source includes AA NiMH batteries that can be recharged via a charging port. *Id.* ¶ 4. The batteries supply power to a wire heating element load via a step down voltage regulator controller chip. *Id.* The heating element is used “to combust the tobacco that is placed within the chamber” of the cigarette. *Id.* at Abstr.

Hammel's Figure 3 is reproduced below.

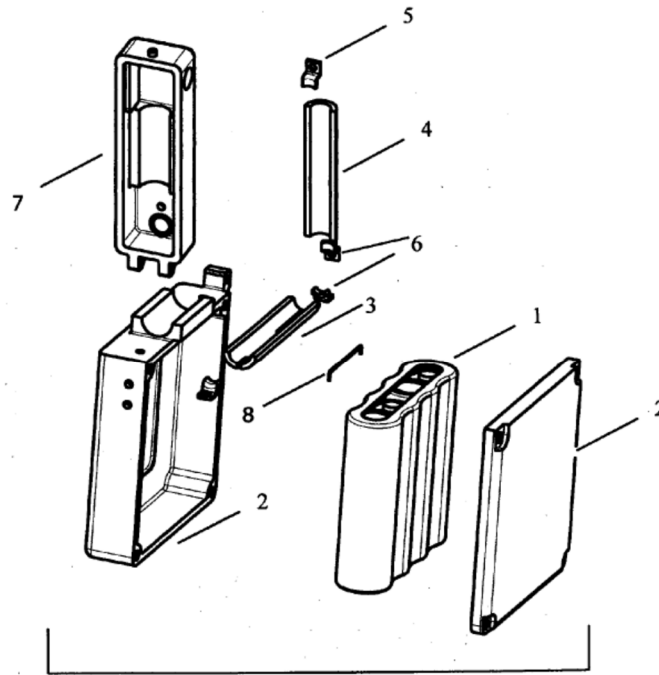


Fig. 3

Figure 3 shows the electronic cigarette's components, including: battery unit 1, case body 2, bottom porcelain half cylinder 3, top porcelain half cylinder 4, and heating element 8. *Id.* ¶¶ 6–10, 12. The electronic cigarette also includes a cylindrical mouthpiece, as shown in Figure 2 reproduced below.

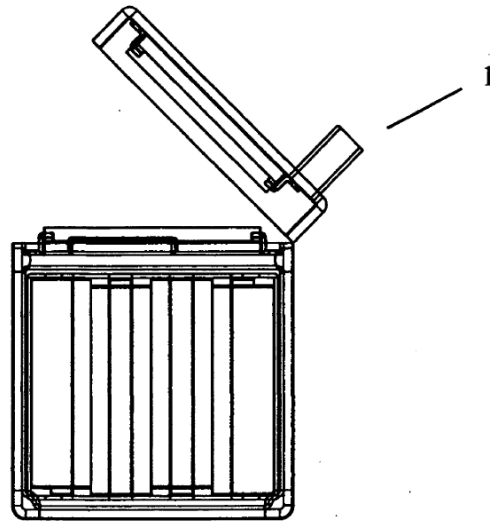


Fig. 2

Id. ¶ 11. Figure 2 depicts cylindrical mouthpiece 1 in the cigarette case body. *Id.* Hammel discloses “[t]he electronic cigarette is designed so that the user can smoke regular tobacco in all weather conditions.” *Id.* ¶ 3.

2. *Whether Hammel is Enabled*

Patent Owner argues Hammel’s disclosure with regard to assembly of the circuit board, heating element, battery, and airflow through the device renders it ambiguous, such that Hammel would not have enabled a person of skill in the art to make or use the electronic pipe recited in the challenged claims, without undue experimentation. PO Resp. 62–63 (citing Ex. 2001 ¶¶ 221–222).

Petitioner responds that Hammel is presumed enabled, and that Patent Owner has not presented any evidence to rebut that presumption. Pet. Reply 25. Petitioner asserts that Hammel provides a detailed circuit diagram, shows the arrangement of its electrical components on a circuit board, and describes in detail how the circuit works to ignite combustible material. *Id.* at 25–26 (citing Ex. 1007, Figs. 1, 5, ¶¶ 3–4; Ex. 1003 ¶¶ 216–219, 226–

233). Petitioner argues that Hammel’s circuit diagrams provide more detail than the ’170 patent, which does not include any circuit diagrams. *Id.* at 27 (citing *In re Epstein*, 32 F.3d 1559, 1568 (Fed. Cir. 1994) (lack of detail in patent-at-issue supports conclusion that prior art is also enabled)).

In reply, Patent Owner states that Petitioner mischaracterizes its argument concerning Hammel’s lack of disclosure of structure to transmit current from the battery to the heating element “as an enablement issue But this is not an enablement issue, nor did [Patent Owner] frame it as such.” PO Sur-reply 22.

Having considered the parties’ arguments and evidence on this issue, and in view of Patent Owner’s statement in its sur-reply that it is not challenging Hammel as non-enabled, we do not further analyze whether Hammel is enabled. As a prior-art patent publication, Hammel is presumed enabled, and Patent Owner does not present evidence to overcome that presumption. *See In re Antor Media Corp.*, 689 F.3d 1282, 1287–88 (Fed. Cir. 2012) (prior-art patent “is presumptively enabling barring any showing to the contrary by a ... patentee.”). Accordingly, we find that Hammel is enabled for purposes of both anticipation and obviousness.

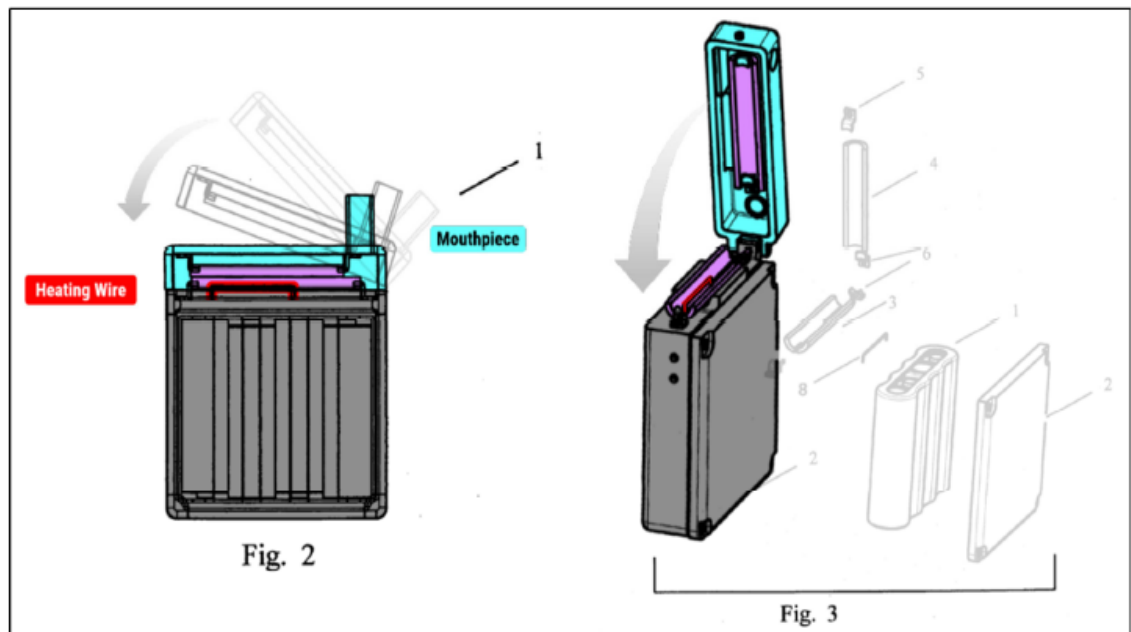
3. *Anticipation Findings*

a) *Claims 1 and 5*

Petitioner contends that, to the extent the preamble of claim 1 is limiting,⁷ Hammel discloses an “electronic pipe” as recited in the preamble, because it discloses an “electronic rechargeable smoking unit,” which it

⁷ Neither party affirmatively argues that the preamble is limiting. Although we find that the evidence supports that Hammel discloses the preamble, we make no determination that the preamble is limiting.

alternatively describes as an “electronic cigarette.” Pet. 53 (citing Hammel ¶¶ 1–3; Ex. 1003 ¶ 223). Petitioner contends Hammel discloses all of the elements of the claims including: “a battery” (*id.* at 53–54 (citing Ex. 1007 ¶¶ 4, 6; Ex. 1003 ¶ 226)); “an electronic module” (*id.* at 55, 58–59 (citing Ex. 1007 ¶¶ 4, 10, claims 1, 2, 5; Ex. 1003 ¶¶ 230, 242–243)); and “a combustible material reservoir.” As to the “combustible material reservoir,” Petitioner contends Hammel discloses elements 3 and 4 of Figure 3 are the bottom and top halves of a cylindrical porcelain tube, respectively, that come together to create a two-piece tube when top cover 7 of the unit is closed. *Id.* at 56–58 (citing Ex. 1007 ¶¶ 8, 9, 12, claims 1, 4, 5; Ex. 1003 ¶¶ 89–91, 236–239). Petitioner provides an annotated illustration of Hammel’s Figures 2 and 3 showing the top cover in closed and open positions, reproduced below.



Pet. 58. In the annotated figures above, Petitioner shades in purple the top and bottom parts of the cylindrical porcelain tube that it alleges correspond to the claimed “combustible material reservoir.” *Id.* Petitioner shades the

top cover and mouthpiece in blue. *Id.* Petitioner contends Hammel discloses that the cylindrical porcelain tube holds combustible material because it states “tobacco . . . is placed within the chamber” and “the electronic cigarette’s porcelain tube has tobacco placed in it.” *Id.* (citing Ex. 1007, Abstr., claim 4; Ex. 1003 ¶¶ 236–240).

Petitioner contends Hammel discloses “a heating element fixed in the combustible material reservoir.” Pet. 58–60. In the annotations of Hammel’s Figures 2 and 3 above, Petitioner shades in red and labels as “heating wire” an unnumbered element located inside the bottom half of the cylindrical porcelain tube. *Id.* at 58. Petitioner also contends element 8 of Figure 3, which Hammel describes as a “heating element,” “nickel chrome wire heater,” and “electric heating wire,” corresponds to the heating element. *Id.* at 59 (citing Ex. 1007 ¶¶ 4, 10, claims 1, 5; Ex. 1003 ¶ 243). Petitioner contends that the position of the heating wire fixed lengthwise within the porcelain tube, as shown in Figure 2, allows the wire to connect through the case to the battery and control circuitry, thus allowing the heating wire to “combust the tobacco that is placed within the chamber.” *Id.* at 60 (quoting Ex. 1007, Abstr.; citing Ex. 1007 ¶ 10; Ex. 1003 ¶¶ 244–245).

Petitioner contends Hammel discloses “combustible material loaded into the combustible material reservoir” because Hammel “uses an electrically heated element in addition to oxygen that is induced by inhalation on the Unit to combust the tobacco that is placed within the chamber” and its “porcelain tube has tobacco placed in it and when the circuit is closed it will only burn the tobacco.” Pet. 60–61 (emphasis omitted) (citing Ex. 1007, Abstr., ¶¶ 8–10, claims 4, 5; Ex. 1003 ¶¶ 90–91, 243–244, 247–250).

Petitioner also contends Hammel discloses “the pipe is structured to transmit an electric current from the battery to the heating element” (Pet. 61–62 (citing Ex. 1007, Figs. 1, 4, ¶¶ 3, 4, 13, claims 3, 7; Ex. 1003 ¶¶ 253–257)) and “the heating element initiating a combustion reaction in the combustible material reservoir.” *Id.* at 62–63 (citing Ex. 1007, Abstr., claims 4, 5; Ex. 1003 ¶ 260).

Patent Owner argues Petitioner has not carried its burden to establish anticipation by Hammel. PO Resp. 55. In particular, Patent Owner argues Hammel does not disclose “a heating element fixed in the combustible material reservoir” as recited in claims 1 and 5, because it “includes no disclosure whatsoever about how or where its heating element is assembled with the device, let alone how it operates.” *Id.* at 57–58 (citing Ex. 2001 ¶ 212). Patent Owner argues that in the four places that Hammel refers to its heating element, it does not describe how it is arranged within the assembled device. *Id.* at 58 (citing Ex. 1007, Abstr., ¶¶ 4, 10, Figs. 1, 3, claim 1; Ex. 2001 ¶¶ 213–219). Patent Owner also argues that there is no support for Petitioner’s contention that Hammel’s heating element protrudes from the top of the case body while connected to the battery inside the case, because it cannot be determined from Figures 2 and 3 how the heating element is assembled, or whether the porcelain tube has holes in it. *Id.* at 59–60 (citing Ex. 1007 ¶¶ 8–10, Figs. 2, 3; Ex. 2001 ¶¶ 218–220; Ex. 2003, 138:14–139:5, 193:7–11)). Patent Owner does not otherwise dispute Petitioner’s contention that Hammel discloses the limitations in claims 1 and 5. *See* PO Resp. 55–63.

Petitioner responds that Patent Owner and Dr. Garris fail to consider what a person of ordinary skill would have reasonably inferred when reading

Hammel as a whole. Pet. Reply 20–21, 23–24. Petitioner argues that a person of ordinary skill would have recognized the heating element in Hammel’s Figure 2 by inferring its shape and location based on the labeled heating element in Figure 3. *Id.* at 22 (citing Ex. 1003 ¶ 244; Ex. 1028 ¶¶ 90–91). Petitioner also argues that Dr. Deevi consistently testified that Hammel’s figures and text together disclose a heating element fixed in a combustible material reservoir (*id.* at 23 (citing Ex. 2003, 131–142, 192–196)) and that a person of ordinary skill would understand that if Hammel’s heating element were not fixed within the porcelain tube, it would not be able to burn tobacco that is placed inside the porcelain tube. *Id.* at 25 (citing Ex. 1003 ¶ 244).

In reply, Patent Owner disputes that a person of ordinary skill would reasonably infer from Hammel’s drawings and text that every element of the challenged claims is disclosed. PO Sur-reply 19–20. Patent Owner asserts that Hammel is ambiguous and its drawings “are neither complete nor accurate.” *Id.* at 21. Patent Owner argues that Hammel’s Figures 2 and 3, and their description, do not clearly disclose a heating element fixed in the porcelain tube and having legs extending through holes in the tube, and that Dr. Deevi cites no evidence to support his opinion that a person of ordinary skill would understand that the heating element is fixed in the porcelain tube. *Id.* at 21, 23. Patent Owner further argues Petitioner has not shown how Hammel’s heating element is connected to the battery, and that it is improper for Petitioner to rely on the knowledge of a person of ordinary skill in the art to fill in the missing limitations in Hammel. *Id.* at 22.

After considering the parties’ arguments and evidence, we find Petitioner has established by a preponderance of the evidence that Hammel

discloses each of the limitations of claims 1 and 5. Petitioner directs us to portions of Hammel that disclose the limitations of claims 1 and 5. Other than the limitation “a heating element fixed in the combustible material reservoir,” Patent Owner does not dispute Petitioner’s arguments and evidence that Hammel discloses the limitations in claims 1 and 5. As to those undisputed limitations in claims 1 and 5, we agree, for the reasons explained in the Petition, that Hammel discloses them.

As to the limitation “a heating element fixed in the combustible material reservoir,” for the reasons explained below, we are persuaded by Petitioner’s arguments and evidence, which includes the figures in Hammel as well as testimony from its expert Dr. Deevi. We address below Patent Owner’s arguments in opposition. *See In re NuVasive, Inc.*, 841 F.3d 966, 974 (Fed. Cir. 2016) (“[t]he Board, having found the only disputed limitations together in one reference, was not required to address undisputed matters.”).

As an initial matter, we note that it is not clear from Patent Owner’s Response and Sur-reply to what extent Patent Owner’s arguments are dependent on Patent Owner’s proposed construction of the claim term “a heating element fixed in the combustible material reservoir.” For example, Patent Owner’s proposed construction would require the heating element be “within the chamber” of the reservoir and “in contact with” combustible material loaded therein (*see* PO Resp. 11), but Patent Owner’s arguments for the most part do not focus on those features in Hammel’s heating element and combustible material reservoir. *See generally* PO Resp., PO Sur-reply; *see also* PO Resp. 60 (referring to Pet. 59 stating “the heating wire ‘can be in contact with the loaded tobacco’”). As explained above in Section II.B,

we do not adopt Patent Owner’s proposed construction. As a result, to the extent that Patent Owner is relying on the features required by its proposed construction, we do not agree with Patent Owner that Hammel does not disclose the disputed claim limitation.

We also do not agree that Hammel’s disclosure is “ambiguous,” “scant,” and “little more than a list of parts,” or that its drawings are incomplete. *E.g.*, PO Sur-reply 19–20. As discussed above, we find that Hammel is enabled and thus do not find these arguments probative in our analysis of whether Hammel discloses the limitations of the challenged claims. To the extent Patent Owner applies these arguments to Hammel’s “silence” as to “how the components are interconnected, and how the device operates,” (PO Resp. 61; *see also* PO Sur-reply 22 (“Petitioner has not shown that ... Hammel is structured to transmit an electric current from the battery to the heating element”)), we disagree, because Hammel’s disclosure includes a circuit diagram showing electrical connections, including from battery 1 to heater 11, as controlled by controller 7 and initiated by mouthpiece switch 3. Ex. 1007, Fig. 1, ¶¶ 3–4; Ex. 1003 ¶¶ 216–219, 226–233. By comparison, the ’170 patent does not include a circuit diagram.

Similarly, Patent Owner’s assertions that Hammel’s disclosure is insufficient because its text descriptions do not state that the heating element protrudes from the top of the case body, or that the porcelain tube has holes in it, do not adequately credit the ability of a person of ordinary skill in the art to interpret Hammel’s figures as a whole. The dispositive question regarding anticipation is whether a person of ordinary skill in the art would reasonably understand or infer from the reference that every claim element is disclosed in that single reference. *Wasica Fin. GmbH v. Cont’l Auto. Sys.*,

Inc., 853 F.3d 1272, 1284 (Fed. Cir. 2017). As Petitioner asserts, and Dr. Deevi credibly testifies, a person of ordinary skill would have inferred the shape and location of the heating element in Figure 2 based on the labeled heating element in the exploded view of Figure 3. *See* Ex. 1007 ¶ 10. We find this assertion to be reasonable. In view of the level of ordinary skill and relative structural simplicity of the claimed subject matter, we also find that a person of ordinary skill would have reasonably understood from Hammel’s figures that its heating element has legs that fix it in place in holes within the porcelain tube. Dr. Deevi’s testimony supports these findings, because he explains that a person of ordinary skill would infer that the heating element within the porcelain tube would not be connected to the battery without holes in the porcelain tube. Ex. 1003 ¶ 244; Ex. 2003, 192–196.

We find no contradiction in Dr. Deevi’s testimony, as Patent Owner asserts. Although Patent Owner asserts “Dr. Deevi conceded that Hammel does not describe any holes in the bottom half of the porcelain tube” (PO Resp. 60 (citing Ex. 2003, 193:7–11)), Dr. Deevi explained in his subsequent response that his opinion is based on the inference a person of ordinary skill would draw from Hammel’s disclosure. Ex. 2003, 193:13–16. We disagree with Patent Owner that Hammel’s disclosure provides insufficient evidence to support Dr. Deevi’s opinion, and we find Dr, Deevi’s explanation of Hammel supports a reasonable inference that it discloses a heating element fixed in the combustible material reservoir.

For the foregoing reasons, we are persuaded that a preponderance of the evidence shows that Hammel discloses each of the limitations of claims 1 and 5.

b) Claims 2–4 and 6–8

Claims 2–4 and 6–8 depend from claims 1 and 5, respectively. Petitioner directs us to Hammel’s disclosures corresponding to the additional limitations in these claims. Pet. 66–69.

Patent Owner does not separately challenge the arguments and evidence Petitioner presents for claims 2–4 and 6–8, but rather relies on the same arguments as it does for the independent claims. *See* PO Resp. 55–63.

After reviewing the evidence and arguments Petitioner presents in the Petition regarding these claims, including the relevant portions of the supporting Deevi Declaration, we agree, for the reasons explained in the Petition, that Hammel discloses all of the limitations in these claims. As a result, we determine Petitioner has established by a preponderance of the evidence that claims 2–4 and 6–8 are anticipated by Hammel.

c) Conclusion

Based upon consideration of the entire record and for the reasons discussed above, we are persuaded that a preponderance of the evidence shows that Hammel discloses each limitation of claims 1–8 of the ’170 patent.

E. Alleged Obviousness Based on Hammel

Petitioner argues that to the extent there is any question whether Hammel anticipates claims 1–8 because it does not disclose a “pipe” as recited in the preamble of claim 1 and element [a] of claim 5, the challenged claims would have been obvious over Hammel. Pet. 69–73. With reference to its arguments in support of anticipation by Hammel, and relying on the testimony of Dr. Deevi, Petitioner contends it would have been within the knowledge of a person of ordinary skill in the art to implement Hammel’s

device in the shape of a traditional tobacco pipe. *Id.* (citing Ex. 1003 ¶¶ 297, 300–303; Ex. 1007 ¶ 3; Ex. 1021, 1:35–2:66, 4:35–57, 12:3–38). Petitioner further argues a person of ordinary skill would have been motivated to modify Hammel’s device into a traditional pipe shape because it was one of a finite number of known form-factors for an electronic smoking device. *Id.* at 71 (citing Ex. 1003 ¶¶ 302–303).

Patent Owner argues that Hammel lacks sufficient detail to even provide a starting point for Petitioner’s proposed modification, and as such, a person of ordinary skill in the art would not have been able to substitute Hammel’s form-factor for another form-factor. PO Resp. 64 (citing Ex. 2001 ¶ 225). Patent Owner further argues that Hammel discourages any modification of its device to a form-factor of a conventional smoking device, and thus teaches away. *Id.* at 65 (citing Ex. 1007 ¶ 3; Ex. 2001 ¶ 226).

Despite having presented the arguments summarized above, neither party proposes a construction of the term “pipe” in the preamble of claim 1 and element [a] of claim 5. Therefore, we have not construed that term or determined that the challenged claims require a particular form factor, and we need not decide whether Petitioner has shown by a preponderance of the evidence that it would have been obvious to modify Hammel’s form-factor into the shape of a traditional pipe. *See In re Gleave*, 560 F.3d 1331, 1338 (Fed. Cir. 2009) (not reaching other grounds of unpatentability after affirming the anticipation ground); *see also Beloit Corp. v. Valmet Oy*, 742 F.2d 1421, 1423 (Fed. Cir. 1984) (holding that once a dispositive issue is decided, there is no need to decide other issues).

F. Alleged Unpatentability Based on Robinson alone, or Robinson and Hon

For the reasons discussed above, Petitioner has shown in Ground 3 that claims 1–8 of the '170 patent are unpatentable, by a preponderance of the evidence. We have, thus, addressed all of the challenged claims. *See* 35 U.S.C. § 318(a) (requiring the Board to “issue a final written decision with respect to the patentability of any patent claim challenged by the petitioner and any new claim added under section 316(d)”); *see also SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1359 (2018) (holding that a petitioner “is entitled to a final written decision addressing all of the claims it has challenged”). Accordingly, we need not and do not decide whether Petitioner has shown by a preponderance of the evidence that claims 1–8 are unpatentable over Robinson alone, or the combination of Robinson and Hon. *Cf. In re Gleave*, 560 F.3d at 1338.

III. REVISED CONTINGENT MOTION TO AMEND

Patent Owner filed a Revised Contingent Motion to Amend, to cancel claims 1–8 if they were found unpatentable and proposed substitute claims 9–16. RMTA. For the reasons discussed above, we have determined that Petitioner has shown original claims 1–8 of the '170 patent to be unpatentable by a preponderance of the evidence; therefore, we proceed to address Patent Owner’s Revised Contingent Motion to Amend.

As a replacement of claim 1, Patent Owner proposed revised substitute claim 9 (hereinafter “claim 9”). RMTA 1. Claim 9 is reproduced below with Patent Owner’s annotations showing amendments to claim 1:

[1]9. An electronic pipe, comprising:
[9a] a first portion having a cross-sectional shape and housing a battery[,] and an electronic module[.];

[9b] a second portion having the cross-sectional shape and adjacent to the first portion along an axis through a center of the cross sectional shape, the second portion housing a combustible material reservoir, and including an ambient air inlet fluidly connected to the combustible material reservoir;

[9c] a heating element electrically coupled to the battery and fixed in the combustible material reservoir;

[9d] combustible material loaded into the combustible material reservoir;

[9e] wherein the electronic module causes ~~pipe is structured to transmit~~ an electric current to flow from the battery to the heating element, causing the heating element to heat the combustible material within the combustible material reservoir to initiate ~~initiating~~ a combustion reaction in the combustible material reservoir, and

[9f] the ambient air inlet is configured to provide a passageway for ambient air to enter the second portion, flow through the combustible material within the combustible material reservoir, and exit the second portion in an inhalation direction parallel to the axis.

RMTA, Claims App'x 1–2 (bracketing and numbering added for reference convenience).

A. *Applicable Law*

“Before considering the patentability of any substitute claims, . . . the Board first must determine whether the motion to amend meets the statutory and regulatory requirements set forth in 35 U.S.C. § 316(d) and 37 C.F.R. § 42.121.” *See Lectrosonics, Inc. v. Zaxcom, Inc.*, IPR2018-01129, Paper 15 at 4 (PTAB Feb. 25, 2019) (precedential). Patent Owner bears the burden of persuasion to show, by a preponderance of the evidence, that the RMTA meets those requirements. 37 C.F.R. § 42.121(d)(1).

A motion to amend “may not enlarge the scope of the claims of the patent or introduce new matter.” 35 U.S.C. § 316(d)(3). New subject matter is any addition to the claims that lacks sufficient support in the subject patent’s original disclosure. *See TurboCare Div. of Demag Delaval*

Turbomach. v. Gen. Elec. Co., 264 F.3d 1111, 1118 (Fed. Cir. 2001) (“When [an] applicant adds a claim . . . , the new claim[] must . . . find support in the original specification.”). Corresponding Rule 42.121 requires a motion to amend to “set forth: (1) The support in the original disclosure of the patent for each claim that is added or amended; and (2) The support in an earlier-filed disclosure for each claim for which benefit of the filing date of the earlier filed disclosure is sought.” 37 C.F.R. § 42.121(b). “A motion to amend may be denied where . . . [t]he amendment seeks to . . . introduce new subject matter.” 37 C.F.R. § 42.121(a)(2)(ii).

Sufficiency of a specification’s written description is a fact question, and “the test for sufficiency is whether the disclosure of the application relied upon reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date.” *Ariad Pharm., Inc. v. Mass. Inst. of Tech.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc). “And while the description requirement does not demand any particular form of disclosure, or that the specification recite the claimed invention *in haec verba*, a description that merely renders the invention obvious does not satisfy the requirement.” *Id.* at 1352 (internal citations omitted).

When an explicit limitation in a claim “is not present in the written description whose benefit is sought it must be shown that a person of ordinary skill would have understood, at the time the patent application was filed, that the description *requires* that limitation.” *Hyatt v. Boone*, 146 F.3d 1348, 1353 (Fed. Cir. 1998) (emphasis added). In other words, where the written description fails to disclose an element *explicitly*, “the applicant must show that *any absent text is necessarily* comprehended in the description

provided and would have been so understood at the time the patent application was filed.” *Id.* at 1354–55 (emphases added).

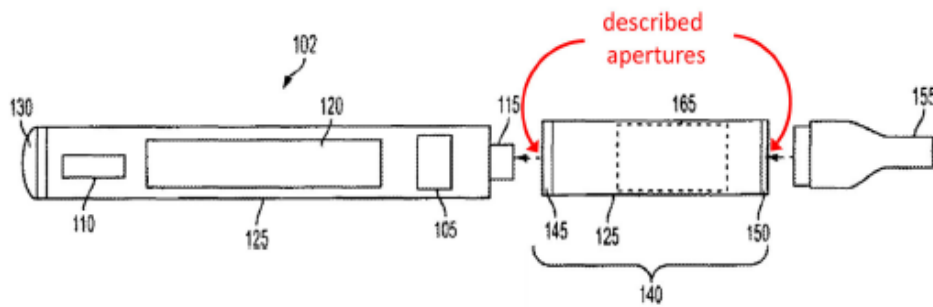
B. Analysis

Patent Owner asserts that the ’848 application supports each element of claim 9. RMTA 3–7 (citing Ex. 1002). Specifically, Patent Owner asserts elements [9b] and [9f] of claim 9 find support in Figure 3 and pages 25–26 of the ’848 application. RMTA 3–7, 9–14 (citing Ex. 1002; Ex. 1001, Figs. 1–3, 3:27–33; 4:58–60; 6:26–38, 45–49); *see also* Reply RMTA 1–5 (citing Ex. 2011 ¶¶ 24–39).

Petitioner opposes the RMTA on the basis, *inter alia*, that the ’848 application⁸ does not support claim 9. Specifically, Petitioner contends to the extent claim 9 is “read narrowly to require the inlet to open directly to the outside atmosphere, i.e., to exclude the described aperture that allows ambient air to enter the second portion via the first portion,” this “is new matter and lacks written description support.” Opp. RMTA 2; *see also* Sur-Reply RMTA 5 (citing Ex. 1001, 8:35–37 (reciting “outside, or ambient air”)). Additionally, Petitioner contends the “small hole, or aperture” discussed in the ’848 application and relied on by Patent Owner (Opp. RMTA 3 (citing Ex. 1002, 25–26)) “is not an air inlet that opens to the outside atmosphere.” Petitioner asserts the text preceding the description of the “small hole, or aperture” would have been understood by a person of

⁸ Petitioner refers to the ’170 patent specification rather than the ’848 application, although Petitioner and Dr. Deevi do not dispute that the ’848 application contains the same written description as the ’170 patent in relation to Figure 3. *See* Ex. 1067 ¶ 51. Because the RMTA refers to the ’848 application, for consistency we also refer to the ’848 application when discussing Petitioner’s contentions.

ordinary skill in the art as describing an aperture in one end of pipe section 140 that does not directly communicate with outside air, but instead allows air to flow from section 140 into mouthpiece 155. *Id.* (citing Ex. 1067 ¶¶ 51–54). Petitioner asserts that because of this context, a person of ordinary skill in the art would have understood the second-described aperture (the “small hole, or aperture” relied upon by Patent Owner) to be located at the opposite end of section 140 and allow air flow between pipe sections 102 and 140, similarly to how the “aperture, or opening at the mouthpiece receiver 150” allows air flow between pipe sections 140 and 155. *Id.* at 3–4 (citing Ex. 1067 ¶¶ 53–54). To illustrate its contention, Petitioner provides the figure reproduced below, which is an annotated version of Figure 3 of the ’848 application, showing an electronic pipe.



In the annotated figure above, red arrows labeled “described apertures” point to opposite ends of section 140 of the electronic pipe of Figure 3.

Patent Owner responds that Petitioner’s assertions as to the location of apertures in section 140 of Figure 3 are incorrect, because “element 145 is not an aperture, but rather, a ‘connector 145 [that] is a matching female USB element that mates to the male USB element comprising the charging head 115.’” Sur-reply RMTA 2 (citing Ex. 1002, 23). Patent Owner argues the ’848 application contains “no disclosure that air can pass through the first pipe section to the second pipe section,” and that there is no support for

Petitioner’s argument that a person of ordinary skill would have understood that an air inlet may be placed in end cap 130 of the first pipe section. *Id.* at 2–3 (citing Ex. 1002, 19). Patent Owner further argues a person of ordinary skill would have understood the ’848 application describes an aperture in the second pipe section that connects the combustible material reservoir with the ambient environment because it refers to “a passageway” located within the second pipe section, and thus it would follow that “the passageway begins at the aperture, flows through the combustible material reservoir, and exits to the mouthpiece for inhalation.” *Id.* at 4 (citing Ex. 2011 ¶ 32).

Having reviewed the ’848 application as cited by Patent Owner in support of elements [9b] and [9f] of claim 9, and the parties’ arguments and evidence concerning the RMTA, we find that the ’848 application does not contain an explicit description of the “ambient air inlet” recited in elements [9b] and [9f] as Patent Owner construes that term, i.e., an aperture that excludes air passage through the first pipe section. *See* Ex. 2011 ¶ 21. In view of the lack of explicit description, Patent Owner has the burden to show that a person of ordinary skill in the art would have understood that the ambient air inlet was necessarily comprehended in the written description of the ’848 application. *Hyatt*, 146 F.3d at 1354–55. We determine that Patent Owner has not met that burden. As we explained in the Preliminary Guidance to the Motion to Amend, paragraph 35 of the ’848 application “does not disclose the location of the hole or aperture precisely enough that we may determine whether it would exclude air passage through the first pipe section.” *See* Paper 21, 6–7 (citing Ex. 1001, 6:34–35); *see also* Opp. RMTA 3. Because the location of the hole or aperture is not disclosed precisely, paragraph 35 of the ’848 application also does not provide written

description support for an inlet direct to ambient air and excluding air passage through the first pipe section.

We do not find persuasive Patent Owner's assertion that a person of ordinary skill in the art "would have readily understood" that the description of Figure 3 in the '848 application "means that the aperture is placed in the second pipe section 140 such that ambient air can be provided to the combustible material reservoir 165 to support a combustion reaction." See Ex. 2011 ¶ 27. Dr. Garris's opinion that the "ambient air inlet" of elements [9b] and [9f] would provide an opening in the second portion of the pipe directly to the atmosphere outside of the pipe (*id.* ¶ 21) is conclusory and solely based on paragraph 35 of the '848 application. Further, Patent Owner did not submit Dr. Garris's testimony with the RMTA, even though Patent Owner has the burden to show written description support, but rather provided only attorney argument with the RMTA and submitted Exhibit 2011 in response to Dr. Deevi's testimony in opposition to the RMTA (Ex. 1067). And, while Patent Owner's and Dr. Garris's reply to Petitioner's argument in the Opposition to RMTA criticizes Petitioner's argument because the '848 application contains no disclosure that air can pass from the first pipe section to the second pipe section, or through end cap 130 (from outside the pipe to the first pipe section), this argument does not satisfy Patent Owner's burden to make an affirmative showing of written description support for elements [9b] and [9f]. We find more persuasive Petitioner's contention that because Figure 3 does not show the location of "a small hole, or aperture" in the second pipe section, it does not show the "ambient air inlet" recited in elements [9b] and [9f]. In other words, the '848 application provides no indication to a person of ordinary skill in the art

that the inventor possessed providing a small hole or aperture directly to the external atmosphere as opposed to merely providing a hole between pipe sections.

On the current record, therefore, we agree with Petitioner that Patent Owner has failed to sufficiently identify adequate written description support for all elements in the revised proposed substitute claims.

Based on the foregoing, Patent Owner has not satisfied the statutory and regulatory prohibition against introducing new matter in the revised proposed substitute claims. 35 U.S.C. § 326(d)(3); 37 C.F.R.

§ 42.221(a)(2)(ii). On that basis, the RMTA is denied as to revised proposed substitute claims 9 and 13 and revised proposed substitute claims 10–12 and 14–16, which depend from revised proposed substitute claims 9 and 13, respectively. Accordingly, we do not reach the unpatentability arguments Petitioner raises with regard to the revised proposed substitute claims.

IV. CONCLUSION

Petitioner has shown, by a preponderance of the evidence, that claims 1–8 are unpatentable over Hammel⁹ as summarized below:

⁹ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this Decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. See 84 Fed. Reg. 16654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. See 37 C.F.R. § 42.8(a)(3), (b)(2).

Claims	35 U.S.C. §	Reference(s)/ Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1, 3, 5, 7	102(b) ¹⁰	Robinson		
2, 4, 6, 8	103(a)	Robinson alone or Robinson and Hon		
1–8	102(a, e)	Hammel	1–8	
1–8	103(a)	Hammel		
Overall Outcome			1–8	

We further conclude that Patent Owner has not satisfied its burden on its motion to amend, and Petitioner has demonstrated by a preponderance of the evidence that proposed substitute claims 9–18 lack sufficient descriptive support. Thus, the preponderance of evidence indicates proposed substitute claims 9–18 lack written description support, and we deny the Revised Contingent Motion to Amend as summarized below:

Motion to Amend Outcome	Claims
Original claims cancelled by amendment	
Substitute claims proposed in the amendment	9–16
Substitute claims: motion to amend granted	
Substitute claims: motion to amend denied	9–16
Substitute claims: not reached	

V. ORDER

In consideration of the foregoing, it is hereby:

¹⁰ As explained in the previous sections, we do not reach the §§ 102 or 103 grounds based on Robinson, or the § 103 ground based on Hammel, because Petitioner has shown that the challenged claims are anticipated by Hammel.

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ORDERED that claims 1–8 of the '170 patent are held to be unpatentable;

FURTHER ORDERED that Patent Owner's Revised Contingent Motion to Amend is *denied* as to revised proposed substitute claims 9–16; and

FURTHER ORDERED that because this is a Final Written Decision, parties to this proceeding seeking judicial review of our decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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