

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

R.J. REYNOLDS VAPOR COMPANY,

Petitioner,

v.

ALTRIA CLIENT SERVICES LLC,

Patent Owner.

IPR2021-00747
Patent 10,588,357 B2

Before GRACE KARAFFA OBERMANN, JAMES J. MAYBERRY, and
ELIZABETH M. ROESEL, *Administrative Patent Judges*.

OBERMANN, *Administrative Patent Judge*.

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

I. INTRODUCTION

Petitioner filed a Petition (Paper 1, “Pet.”) requesting *inter partes* review of claims 1–3, 5, and 7–15 of U.S. Patent No. 10,588,357 B2 (Ex. 1004, “the ’357 Patent”). Patent Owner filed a Preliminary Response. Paper 6 (“Prelim. Resp.”). With Board pre-authorization, Petitioner filed a stipulation entered in *Altria Client Services LLC et al. v. R.J. Reynolds Vapor Company*, No. 1:20-cv-00472-NCT-JLW (M.D.N.C. May 28, 2020) (“the District Court case”). See Paper 7 (“Stipulation”).

The Petition indicates that R.J. Reynolds Vapor Company, RAI Innovations Company, R.J. Reynolds Tobacco Company, and Reynolds Asia-Pacific Limited are real parties-in-interest for Petitioner. Pet. 82. Patent Owner’s Mandatory Notices indicate that Altria Client Services LLC and Altria Group, Inc. are real parties-in-interest for Patent Owner. Paper 4, 1.

The parties state that the District Court case involves the ’357 patent. Pet. 82, Paper 4, 1. The parties also identify IPR2021-00744, IPR2021-00745, and IPR2021-00746 as involving related patents, respectively, U.S. Patent Nos. 10,299,517, 10,485,269, and 10,492,541. Pet. 82; Paper 4, 1.

II. BACKGROUND

A. The ’357 Patent (Ex. 1004)

The ’357 patent is titled “Pod Assembly, Dispensing Body, and E-Vapor Apparatus Including the Same.” Ex. 1004, code (54). The e-vapor apparatus of the claimed invention includes a pod assembly comprising a liquid compartment, a vaporizer compartment, and a vapor channel. *Id.* at 18:45–60 (independent claim 1), 19:27–20:4 (independent claim 10). The written description identifies the liquid compartment as a “vapor precursor

compartment,” which is “configured to hold a vapor precursor,” such as an “e-liquid” that “may be transformed into a vapor.” *Id.* at 1:61–62, 5:21–24.

In some embodiments of the claimed invention, the “vaporizer compartment” includes “a heater and a wick.” *Id.* at 18:55–57 (independent claim 1). In these embodiments, the “vaporizer compartment” is “in fluidic communication with the liquid compartment.” *Id.* The written description, by contrast, refers to a “device compartment in fluidic communication with the vapor precursor compartment.” *Id.* at 3:3–4, 10:44–46.

In an embodiment depicted in Figure 18, “the internal space of the pod assembly” is “divided into a plurality of compartments,” including “the vapor precursor compartment” and “the device compartment,” which “may include the vaporizer.” *Id.* at 10:15–26. We reproduce Figure 18 below.

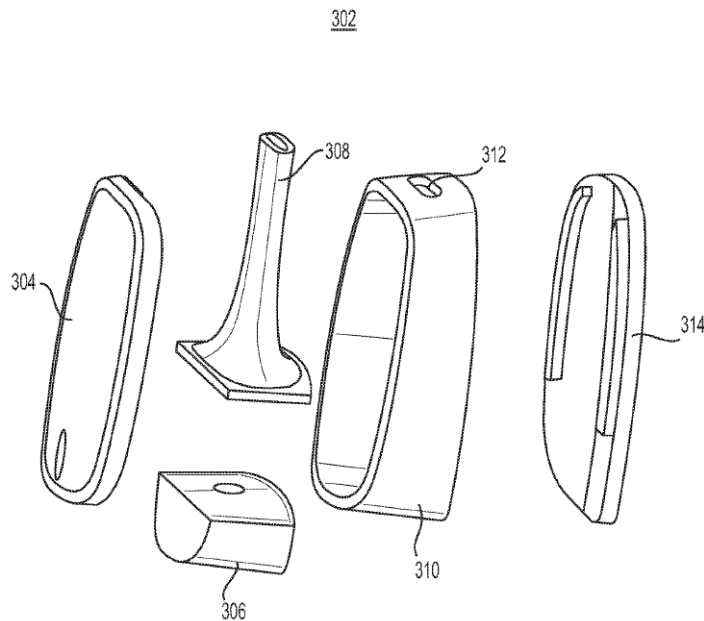


FIG. 18

Id. at Fig. 18. Figure 18 illustrates an exploded view of pod assembly 302 of an e-vapor apparatus according to the invention. *Id.* at 3:46–47, 3:50–51,

10:15–30. “[T]he internal space of” pod assembly 302 is “divided into a plurality of compartments by virtue of the components therein.” *Id.*
at 10:16–18. A space bounded by first cap 304, vapor channel 308, pod trim 310, and second cap 314 represents “the vapor precursor compartment.” *Id.* at 10:20–23. “Additionally,” the “bounded space under” vapor channel 308 is “the device compartment,” which includes vaporizer 306. *Id.*
at 10:23–26. In some claimed embodiments, a heater is included, for example, as “a wire coil surrounding a wick.” *Id.* at 17:56 (written description), 18:57 (independent claim 1, specifying “a heater and a wick”).

The specified pod assembly further comprises “a plurality of external surfaces,” including “a front face, a rear face, a first side face,” and “a second side face.” *Id.* at 18:46–47 (claim 1), 19:28–32 (claim 10). A vapor is “surrounded by the liquid compartment” and, further, is “visible through at least the front face or rear face” of the pod assembly. *Id.* at 18:58–60 (claim 1), 20:2–4 (claim 10).

B. Challenged Claims

Petitioner challenges claims 1–3, 5, and 7–15 of the ’357 patent. Pet. 5. Claims 1 and 10 are the independent challenged claims. We reproduce below claims 1 and 10, which illustrate the subject matter of the claimed invention.

1. A pod assembly for an e-vapor apparatus, comprising:
 - a plurality of external surfaces including a front face, a rear face, a first side face, a second side face, a downstream end face, and an upstream end face, a portion of at least the front face or the rear face being transparent, the downstream end face defining an outlet;

- a liquid compartment configured to hold a liquid formulation such that the liquid formulation is visible through at least the front face or the rear face;
- a vaporizer compartment in fluidic communication with the liquid compartment, the vaporizer compartment being adjacent to the upstream end face, the vaporizer compartment including a heater and a wick;
- a vapor channel surrounded by the liquid compartment, the vapor channel being visible through at least the front face or the rear face; and
- a plurality of electrical contacts having respective planar surfaces at the upstream end face, the vapor channel being between the outlet and the plurality of electrical contacts.

Ex. 1004, 18:45–64.

10. An e-vapor apparatus comprising:

- a pod assembly including a plurality of external surfaces, a liquid compartment, a vaporizer compartment, and a vapor channel, the plurality of external surfaces including a front face, a rear face, a first side face, a second side face, a downstream end face, and an upstream end face, a portion of at least the front face or the rear face being transparent, the liquid compartment configured to hold a liquid formulation such that the liquid formulation is visible through at least the front face or the rear face, the vapor channel surrounded by the liquid compartment, the vapor channel being visible through at least the front face or the rear face; and
- a device body including a magnet and defining a pod compartment configured to receive the pod assembly so as to produce an audible click.

Ex. 1004, 19:27–20:7.

Claim 10, like claim 1, specifies a pod assembly comprising “a liquid compartment,” “a vaporizer compartment,” and “a plurality of external surfaces” that include “a front face, a rear face,” and two “side” faces. *Id.* at 19:27–32. The limitations of claims 1 and 10, however, differ in other

material respects. For example, claim 10, but not claim 1, specifies “a device body including a magnet and defining a pod compartment configured to receive the pod assembly so as to produce an audible click.” *Compare id.* at 18:45–64 (claim 1), *with id.* at 19:27–20:7 (claim 10). The written description explains, with regard to this “audible click” limitation of claim 10, “The engagement of the mating member with the corresponding recess may result in an audible click, which notifies the adult vaper that the pod assembly is secured and properly positioned within the through-hole 114 of the dispensing body 104.” *Id.* at 7:63–66 (numerals denoting those elements omitted); *see id.* at Fig. 1, 5 (illustrating these elements and their relationship in an electronic cigarette).

In addition, claim 1, but not claim 10, requires the vaporizer compartment to be “in fluidic communication with the liquid compartment” and, further, specifies that the vaporizer compartment must include “a heater and a wick.” *Compare id.* at 18:45–64 (claim 1), *with id.* at 19:27–20:7 (claim 10). Claim 1 also requires, but claim 10 does not, that the pod assembly must have “a plurality of electrical contacts having respective planar surfaces at the upstream end face.” *Compare id.* at 18:45–64 (claim 1), *with id.* at 19:27–20:7 (claim 10).

Claims 2, 3, 5, and 7–9 depend directly or indirectly from claim 1 and, thereby, inherit the limitations of claim 1. *Id.* at 18:65–19:26. Claims 11–15, by contrast, depend directly from claim 10 and, thereby, inherit the limitations of claim 10. *Id.* at 20:8–23.

C. Asserted Grounds of Unpatentability

Petitioner asserts grounds under 35 U.S.C. § 103,¹ as follows:

Ground	Claims Challenged	Reference(s)
1	1–3, 5, 7–9	Juul 1, ² Juul 2, ³ Juul 3 ⁴
2	10–15	Juul 1, Juul 2, Juul 3, and Verleur ⁵
3	1–3, 5, 7–15	Verleur

Pet. 6–7.⁶

For purposes of deciding whether to institute review, we accept Petitioner’s assertions, which Patent Owner does not oppose in the Preliminary Response, that Juul 1, Juul 2, and Juul 3 “were published and publicly available on April 21, 2015.” Pet. 6 n.1 (citing Exs. 1015–1018); *see* Prelim. Resp. 28 n.5 (Patent Owner, arguing only that none of the Juul Articles “predate the first public availability of the Juul device” and, further, averring that the device itself became available after the priority date of

¹ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284 (September 16, 2011), includes revisions to Section 103 that became effective on March 16, 2013. Because the ’357 patent issued from an application filed after March 16, 2013, we apply the AIA version.

² *This Might Just Be the First Great E-Cig*, WIRED (Apr. 21, 2015), <https://www.wired.com/2015/04/pax-juul-ecig/> (Ex. 1011).

³ *Startup behind the Lambo of vaporizers just launched an intelligent e-cigarette*, THE VERGE (Apr. 21, 2015) <https://www.theverge.com/2015/4/21/8458629/pax-labs-e-cigarette-juul> (Ex. 1012).

⁴ *PAX Labs, Inc. Introduces Revolutionary Technologies with Powerful E-Cigarette JUUL*, BUSINESSWIRE (Apr. 21, 2015) <https://www.businesswire.com/news/home/20150421005219/en/PAX-Labs-Inc.-Introduces-Revolutionary-Technologies-with-Powerful-E-Cigarette-JUUL> (Ex. 1013).

⁵ US Pub. No. 2015/0128976 A1, pub. May 14, 2015 (Ex. 1014).

⁶ Petitioner refers to Ground 1a, Ground 1b, and Ground 2. *See* Pet. 6–7. We adopt Patent Owner’s convention and refer to these challenges, respectively, as Ground 1, Ground 2, and Ground 3. *See* Prelim. Resp. 24, 41, 52.

the '357 patent). We further adopt Patent Owner's convention of referring to these references collectively as "the Juul Articles." Prelim. Resp. 2. When citing to the Juul Articles, we identify page numbers added by Petitioner.

Petitioner relies on the Declaration of Karl R. Leinsing. Ex. 1005. Patent Owner relies on the Declaration of Joseph C. McAlexander. Ex. 2001. Based on their statements of qualifications and *curricula vitae*, we find both Mr. Leinsing and Mr. McAlexander qualified to opine about the level of ordinary skill in the art at the time of the invention and to testify from the perspective of a person having such skill. *See* Ex. 1005 ¶¶ 5–8 (Mr. Leinsing's statement of qualifications), Ex. 1006 (Mr. Leinsing's *curriculum vitae*), Ex. 2001 ¶¶ 12–17 (Mr. McAlexander's statement of qualifications), Ex. 2002 (Mr. McAlexander's *curriculum vitae*).

III. ANALYSIS

A. Level of Ordinary Skill in the Art

The level of ordinary skill in the art at the time of the invention is a factual determination that provides a primary guarantee of objectivity in an obviousness analysis. *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 1324 (Fed. Cir. 1999) (citing *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966); *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991)). In Petitioner's view, an ordinarily skilled artisan "would possess at least a Bachelor's degree in mechanical engineering, electrical engineering, chemistry, or physics, or a related field, and over three years of relevant industry experience, or a Master's degree" in such a field as well as "two years of industry experience." Pet. 5 (citing Ex. 1005 ¶¶ 17–20). Additionally, according to Petitioner, an ordinarily skilled artisan "would have been familiar with electrically powered vaporizing articles and their

components and underlying technologies or similar components and technologies.” *Id.* “Patent Owner adopts this level of skill in the art for the purposes of responding to this Petition.” Prelim. Resp. 22.

On this record, we find the level of ordinary skill is reflected adequately in the asserted prior art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (specific findings on the ordinary skill level are not required “where the prior art itself reflects an appropriate level and a need for testimony is not shown” (quoting *Litton Indus. Prods., Inc. v. Solid State Sys. Corp.*, 755 F.2d 158, 163 (Fed. Cir. 1985))). To the extent a more specific definition is required for purposes of this Decision, we adopt Petitioner’s unopposed definition, which is consistent with the disclosures of the asserted prior art and the ’357 patent.

B. Claim Construction

Pursuant to the applicable rule, claims “shall be construed using 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) (2021). Under that standard, the “words of a claim ‘are generally given their ordinary and customary meaning,’” which is “the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc) (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). We construe terms in controversy only to the extent necessary to resolve the controversy. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017); *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

The parties address the constructions of several claim terms. Pet. 7–9; Prelim. Resp. 22–24. Specifically, the parties dispute the meaning of the phrase “plurality of electrical contacts having respective planar surfaces at the upstream end face” and the word “face” but agree about the meaning of the term “adjacent to.” *Compare* Pet. 7–9, *with* Prelim. Resp. 22–24. Only dependent claim 11 recites the phrase “adjacent to.” Ex. 1004, 20:9 (sole appearance of that phrase in the challenged claims). The phrase “plurality of electrical contacts having respective planar surfaces at the upstream end face” appears in one independent claim (namely, claim 1) but not the other (that is, claim 10). Ex. 1004, 18:61–62. The word “face” appears several times in both independent challenged claims. *Id.* at 18:46–51, 18:54, 18:60, 18:62, 19:31–33, 20:1–4 (appearance of “face” in claims 1 and 10).

Petitioner relies on Patent Owner’s infringement contentions and the accused product as providing the meaning of “face” for purposes of the Petition. Pet. 8–9. After the filing of the Petition, but before the filing of the Preliminary Response, a claim construction order issued in the District Court case. Ex. 2009. The District Court construed the terms “front face” and “rear face” in the challenged claims. *Id.* at 24. In particular, the District Court found, “[A] person of ordinary skill in the art would understand the terms ‘front face’ and ‘rear face’ to mean: front/rear surface bounded by one or more edges.” *Id.* at 26 (emphasis omitted). Patent Owner adopts the District Court’s construction for purposes of this proceeding. Prelim. Resp. 24.

We need not assign express constructions to these or any other terms to resolve whether to institute review. As further discussed below, without specifically relying on the District Court’s construction that the specified faces are “bounded by one or more edges” (Ex. 2009, 26), we determine that

Petitioner has not explained adequately how or why the asserted prior art (in particular, Verleur) would have suggested a pod assembly having faces.

C. Analysis of the Patentability Challenges

We organize our analysis into three parts, addressing in turn each ground of invalidity asserted in the Petition. *See* Pet. 6–7. First, we assess the information presented in connection with the ground asserted against claims 1–3, 5, and 7–9 based on the Juul Articles. *See id.* at 18–35 (Petitioner’s information); Prelim. Resp. 24–41 (Patent Owner’s information). Second, we assess the information presented in connection with the ground asserted against claims 10–15 based on the combined disclosures of the Juul Articles and Verleur. *See* Pet. 36–43 (Petitioner’s information); Prelim. Resp. 41–52 (Patent Owner’s information). Third, we assess the information presented against claims 1–3, 5, and 7–15 in connection with the ground based on Verleur. *See* Pet. 46–78 (Petitioner’s information); Prelim. Resp. 52–63 (Patent Owner’s information).

(1) Obviousness Ground Based on the Juul Articles

Petitioner asserts that the subject matter of claims 1–3, 5, and 7–9 would have been obvious over the Juul Articles. Pet. 18–35. We first assess the information presented in connection with the challenge against independent claim 1, then turn to dependent claims 2, 3, 5, and 7–9.

a. Independent Claim 1

Claim 1 specifies a pod assembly comprising “a liquid compartment” and “a vaporizer compartment.” Ex. 1004, 18:52, 18:55. The “vaporizer compartment” is “in fluidic communication with the liquid compartment” and further includes “a heater and a wick.” *Id.* at 18:55–57. In Petitioner’s view, the subject matter of claim 1 would have been obvious over the Juul

Articles. Pet. 18–28. The Juul Articles discuss the launch of an e-cigarette product having “a pocket-size vaporizer and nicotine juice cartridges you swap in and out.” Ex. 1011, 2. Petitioner asserts that an image from Juul 1, reproduced below, discloses the specified combination of a liquid compartment, a vaporizer compartment, a heater, and a wick. Pet. 22–24.



Ex. 1011, 5; *see* Pet. 23 (annotated version). The above image appears to show one of the liquid nicotine cartridges or “Juulpods” referenced in the Juul Articles. Ex. 1011, 2; Ex. 1012, 2; Ex. 1013, 1. Juul 1 does not describe this image or identify the components visible in the image. *See generally* Ex. 1011. The image reflects a generally rectangular device that includes an opaque black upper portion and a transparent lower portion. Within the transparent lower portion, there are three circular or spherical elements, which appear to be air bubbles floating within a liquid. *Id.* at 5. Those bubble-like elements support Petitioner’s view that the lower transparent portion of the device in this image contains a liquid. Pet. 23 (annotating this

substance as “Liquid”). The asserted liquid is golden yellow in color.
Ex. 1011, 5.

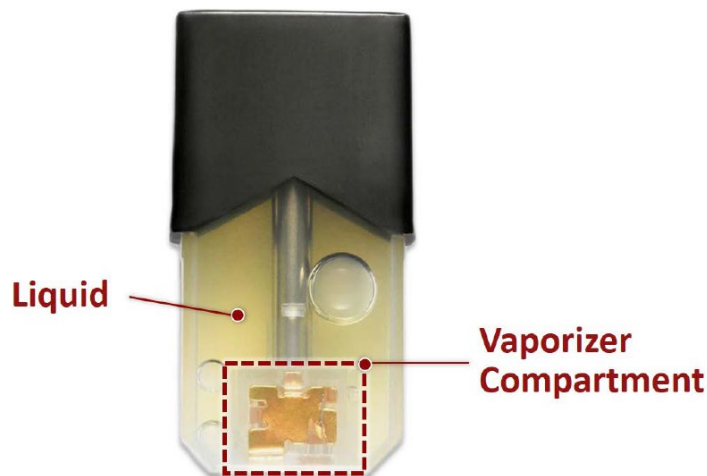
Petitioner directs us to no disclosure in the asserted prior art from which we can identify, or discern the function of, any other component of the device depicted in the above image. *See* Pet. 22–24 (Petitioner’s arguments pertaining to the image); *see generally* Exs. 1011–1013 (Juul Articles, nowhere identifying any feature of any device by reference to this image). For example, Petitioner addresses the limitation that requires a vaporizer compartment in fluidic communication with a liquid compartment, where the vaporizer compartment includes a heater and a wick, by providing an annotation of the above image from Juul 1. Pet. 22–24. But, as further discussed below, Petitioner directs us to no disclosure in the Juul Articles that clarifies whether, much less where, the above image reflects a liquid compartment, a vaporizer compartment, a heater, or a wick.

We observe an irregularly shaped gold object visible in the above image within the transparent lower portion near the center bottom of the device. Ex. 1011, 5. A square shaped area, somewhat lighter in color than the surrounding golden yellow liquid, frames the gold object. A silver element, which appears to be cylindrical in shape, traverses the liquid and terminates at about the midpoint of the upper edge of the square shaped frame area. A gap in the frame area is visible between the gold object and the silver element. A rightward edge of the center left bubble-like element contacts a leftward edge of the silver element. *Id.*

Petitioner and its witness, Mr. Leinsing, make assumptions about these objects, elements, and shapes that are not supported adequately by disclosures in the prior art. Pet. 22–24 (arguments pertaining to this image,

citing Ex. 1005 ¶¶ 56, 259–264). For example, Petitioner asserts, “Juul discloses that Juulpod has a heating mechanism and wick.” Pet. 23. By way of support, however, Petitioner directs us to no disclosure in the Juul Articles that indicates the location of the heater or the wick within the Juulpod. *Id.* (citing Ex. 1011, 4–6; Ex. 1012, 2–3; Ex. 1013, 1). This is critical because the claims recite that “a heater and a wick” are included in a “vaporizer compartment,” which is in fluid communication with a separately recited “liquid compartment.” Ex. 1004, 18:52–57.

Petitioner asserts that an annotated version of the above image from Juul 1 shows “a vaporizer compartment having the heating mechanism and wick.” Pet. 23. We reproduce below Petitioner’s annotated version of the image from Juul 1.



Id. The above image is Petitioner’s annotated version of the image from Juul 1, which appears to show a liquid nicotine cartridge or Juulpod. Petitioner’s annotation is a mirror image of the original image from Juul 1. The largest bubble-like element, visible on the left in the original image, is on the right in Petitioner’s annotated version, and two smaller bubble-like elements, visible on the right in the original image, are visible on the left in

Petitioner's annotated version. Petitioner adds red annotations to identify a liquid and a vaporizer compartment. In particular, Petitioner superimposes a red dashed line onto the outer edges of the square shaped frame area surrounding the gold object and labels it "Vaporizer Compartment." *Id.*

Petitioner's obviousness challenge is based on the Juul Articles, not the subsequently launched Juulpod device. *See* Prelim. Resp. 28 n.5 (Patent Owner, explaining that the Juulpod device became available only after the critical date of the invention). On this record, we find that the scant disclosures of the Juul Articles are not sufficient to support Petitioner's contentions regarding how the components reflected in the images from the Juul Articles correspond to components required by the challenged claims.

In an *inter partes* review, the petitioner has the burden from the outset to show with particularity why a challenged patent claim is unpatentable. *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016). As part of that initial burden, the petition must identify "with particularity" the "evidence that supports the grounds for the challenge to each claim."

35 U.S.C. § 312(a)(3). Petitioner fails to explain with any particularity how or why the image reproduced above supports its view that the Juul Articles disclose a liquid compartment, a vaporizer compartment, a heater, and a wick. Pet. 23–25 (and citations to evidence therein). At best, Petitioner argues that Juul 3 discloses a "liquid-to-wick cartridge system." Ex. 1013, 1; Pet. 24. That phrase falls short of establishing adequately the identity, location, or function of any object, element, or shape in the Juulpod image.

Even if we accept that the device depicted in the above image from Juul 1 "has a 'liquid-to-wick' cartridge system," as discussed in Juul 3 (Ex. 1013, 1), we find Petitioner does not explain adequately how or why an

ordinarily skilled artisan would have determined which, if any, components in the Juulpod image correspond to the specified “heater and wick.”

Ex. 1004, 18:57; *see* Pet. 22–24; Ex. 1005 ¶¶ 56, 259–264 (Mr. Leinsing’s declaration testimony, failing to identify with particularity the location of the heater or the wick, for example, in the image from Juul 1 upon which Petitioner relies to make out this ground). On this record, we agree with Patent Owner, “[N]othing in any of the Juul Articles describes the significance of” the irregularly shaped gold object in the image from Juul 1. Prelim. Resp. 28. Petitioner and Mr. Leinsing “simply assume that this element contains a heating mechanism and a wick.” *Id.* We agree, on this record, that “Petitioner’s failure to point to any disclosure in any of the Juul Articles describing a vaporizer compartment separate from a liquid compartment underscores the lack of disclosure” in the Juul Articles. *Id.*

Petitioner does not explain adequately why the images from the Juul Articles would have suggested to an ordinarily skilled artisan a vaporizer compartment in fluidic communication with a liquid compartment. Pet. 22–24. Without sufficient explanation, analysis, or support in the prior art, Petitioner annotates the image from Juul 1 to label the square shaped frame area as a vaporizer compartment. *Id.* at 23. Neither Petitioner nor Mr. Leinsing explains that annotation. *Id.* at 22–24 (citing Ex. 1005 ¶¶ 56, 259–264). For example, neither Petitioner nor Mr. Leinsing explains why a person of ordinary skill in the art would have understood that the Juulpod includes a vaporizer compartment in addition to a liquid compartment or that a heater and a wick are located in a vaporizer compartment. Further, although Petitioner and Dr. Leinsing attempt to bolster the disclosure of the references with an annotated image of the Juulpod (*id.* at 23; Ex. 1005

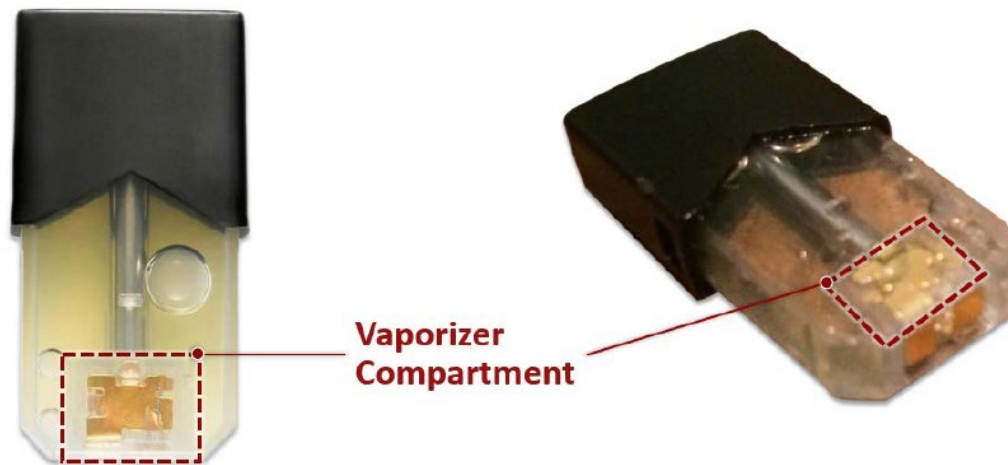
¶ 263), their annotation is missing at least two claim elements (a heater and a wick) and their identification of a “Vaporizer Component” is not supported sufficiently by the Juul Articles. Given the absence of an alternative explanation, based on the information presented, we view Petitioner’s annotation, identifying the square shaped frame area as a vaporizer compartment, as an impermissible exercise of hindsight reconstruction driven not by any prior art disclosure but, instead, by the description of the invention provided in the ’357 patent.

Accordingly, on this record, we find that Petitioner does not show sufficiently, for purposes of instituting review, that the Juul Articles would have suggested to an ordinarily skilled artisan a vaporizer compartment, including a heater and a wick, in fluidic communication with a liquid compartment as specified in claim 1. Ex. 1004, 18:55–57; *see* Pet. 22–24 (failing to address adequately these issues); Prelim. Resp. 27–29 (Patent Owner’s counter information on point).

b. Dependent Claims 2, 3, 5, and 7–9

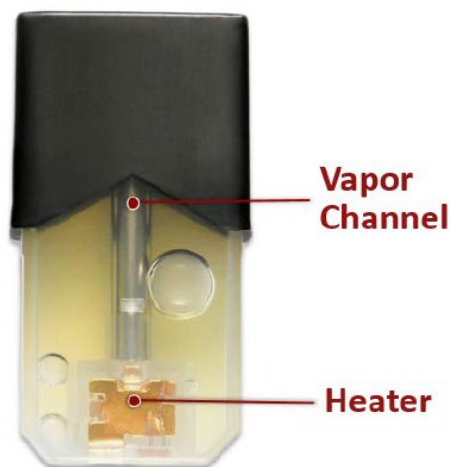
Each of claims 2, 3, 5, and 7–9 inherits, by direct or indirect dependence on claim 1, the same limitations, addressed in our analysis above, pertaining to the vaporizer compartment. Ex. 1004, 18:65–19:26. In connection with these dependent claims, Petitioner relies on the same image from Juul 1 (*see supra* 12), annotated to identify a vaporizer compartment by superimposing red dashed lines on the square shaped frame area. Pet. 32 (Petitioner’s annotated version of the image from Ex. 1011, 5).

Petitioner provides additional annotated images when addressing the dependent claims. We reproduce below images from Juul 1 and Juul 2, which Petitioner has annotated to identify a “Vaporizer Compartment.”



Pet. 33 (citing Ex. 1011, 5; Ex. 1012, 4). The image on the left is from Juul 1, whereas the image on the right is from Juul 2. Petitioner superimposes red dashed lines around the square shaped frame area in the image on the left, and around a corresponding area in the image on the right, labeling both areas “Vaporizer Compartment.”

We reproduce below Petitioner’s annotation of an image from Juul 1, which Petitioner has annotated to identify a “Vapor Channel” and a “Heater.”



Pet. 34 (citing Ex. 1011, 5; Ex. 1012, 4). The above image also depicts the image from Juul 1, but here, Petitioner labels the silver element as a “Vapor

Channel” and the irregularly shaped gold element as a “Heater.” These annotations lack adequate support in Juul 1 and Juul 2, upon which Petitioner’s relies. *Id.* Neither identifies, by reference to the above image from Juul 1, any component of the Juulpod. *See* Ex. 1011; Ex. 1012.

Petitioner directs us to no disclosure in any of the Juul Articles that supports adequately the annotations added to the above images. Pet. 28–35. Instead, Petitioner makes conclusory assumptions about the components depicted therein. *See, e.g.* Pet. 33–34 (arguing, without directing us to sufficient objective support, that “Juul discloses” a “vapor channel” that extends from a “heating mechanism toward” a “mouthpiece” and, further, that a “vaporized liquid travels through the vapor channel away from the heating mechanism and to the mouthpiece”). Petitioner does not explain adequately why the square shaped frame area, denoted by red dashed lines, would have suggested a vaporizer compartment, or why the irregularly shaped gold object would have been viewed as a heater. Pet. 28–35.

For these reasons, we find Petitioner is not reasonably likely to prevail in showing that the subject matter of dependent claims 2, 3, 5, and 7–9 would have been obvious over the Juul Articles.

(2) Obviousness Ground Based on Juul Articles and Verleur

Petitioner also asserts that the subject matter of claims 10–15 would have been obvious over the combined disclosures of the Juul Articles and Verleur. Pet. 36–45. We first address the challenge presented against independent claim 10, then turn to dependent claims 11–15.

a. Independent Claim 10

Claim 10, like claim 1, requires a pod assembly having “a vaporizer compartment.” *Compare* Ex. 1004, 18:45–47 (claim 1), *with id.* at 19:28,

19:30–32 (claim 10). As Patent Owner points out, “Petitioner relies solely on the Juul Articles” to support its view that the asserted prior art would have suggested the vaporizer compartment specified in claim 10. Prelim.

Resp. 46; *see* Pet. 37.

As with claim 1, Petitioner simply repeats in the context of claim 10 its view that the “vaporizer compartment” of the claimed invention would have been obvious over the Juul Articles. Pet. 37. We agree with Patent Owner, “Petitioner’s whole theory rests on the gold colored element being a vaporizer compartment.” Prelim. Resp. 46. For reasons stated above, we further agree with Patent Owner that “the Juul Articles include no disclosure regarding the gold colored element, much less” any disclosure that would have informed an ordinarily skilled artisan that the gold colored element represents “a vaporizer compartment” as specified in claim 10. *Id.*

On this record, Petitioner does not show sufficiently that the Juul Articles would have suggested the vaporizer compartment of claim 10. Petitioner does not argue that the disclosure of Verleur corrects that deficiency. Pet. 37. Accordingly, we find Petitioner does not show a reasonable likelihood of prevailing at trial in showing that the subject matter of claim 10 would have been obvious over the Juul Articles and Verleur.

b. Dependent Claims 11–15

Claims 11–15 depend directly from claim 10. Ex. 1004, 20:8–22. Here again, Petitioner simply repeats its view that the Juul Articles disclose a vaporizer compartment, without relying on the disclosure of Verleur. Pet. 41–45. For example, Petitioner reproduces the same image from Juul 1 (*see supra* 12), annotated to demarcate the square shaped frame area as a vaporizer compartment, in connection with dependent claims 11 and 13.

Compare id. at 42, 43, *with id.* at 23 (Petitioner’s annotated versions of the image from Ex. 1011, 5, labeling the square shaped frame area in the image from Juul 1 a “Vaporizer Compartment” without directing us to adequate objective support for that annotation).

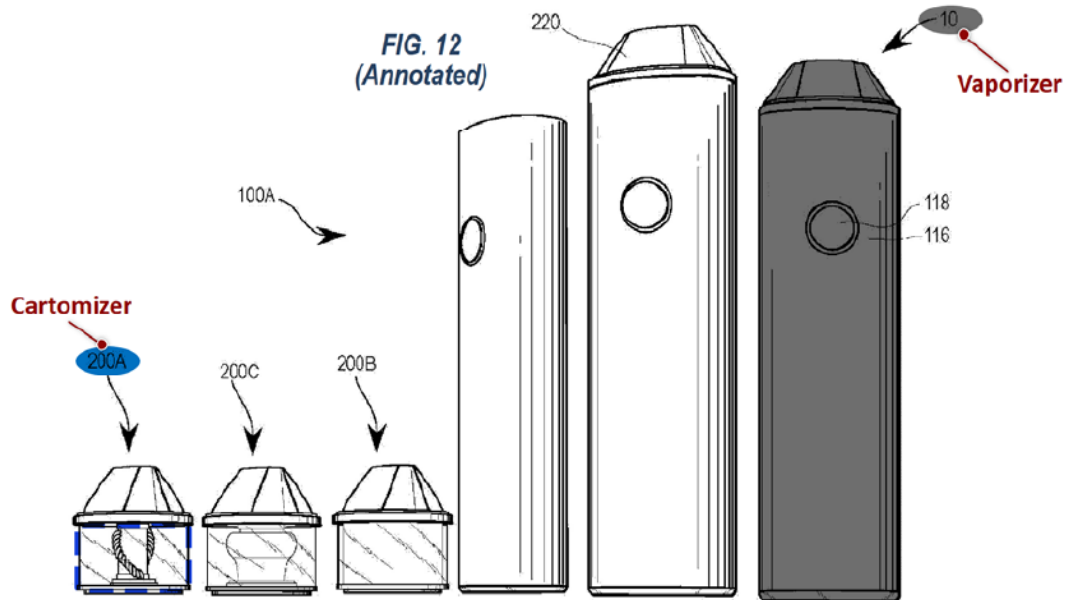
Our reasoning above, regarding the insufficiency of Petitioner’s showing that the Juul Articles disclose a “vaporizer compartment” as specified in 10, applies with equal force to claims 11–15, which depend therefrom. Petitioner does not explain adequately why the Juul Articles would have suggested a pod assembly having the specified vaporizer compartment and makes no argument that any disclosure in Verleur cures that deficiency. *Id.* at 41–45. On this record, Petitioner does not demonstrate a reasonable likelihood of prevailing in showing that the subject matter of claims 11–15 would have been obvious over these references.

(3) Obviousness Ground Based on Verleur

Petitioner also asserts that the subject matter of claims 1–3, 5, and 7–15 would have been obvious over Verleur. Pet. 46–48. We first address independent claim 1, then turn to the other challenged claims.

a. Independent Claim 1

Claim 1 specifies a pod assembly having “a plurality of external surfaces,” including “a front face, a rear face, a first side face,” and “a second side face.” Ex. 1004, 18:45–47. In Petitioner’s view, Verleur discloses a pod assembly, namely, cartomizer 200A, having the “plurality of external surfaces” specified in claim 1. Pet. 47–50. We reproduce below Petitioner’s annotated version of Figure 12 from Verleur.



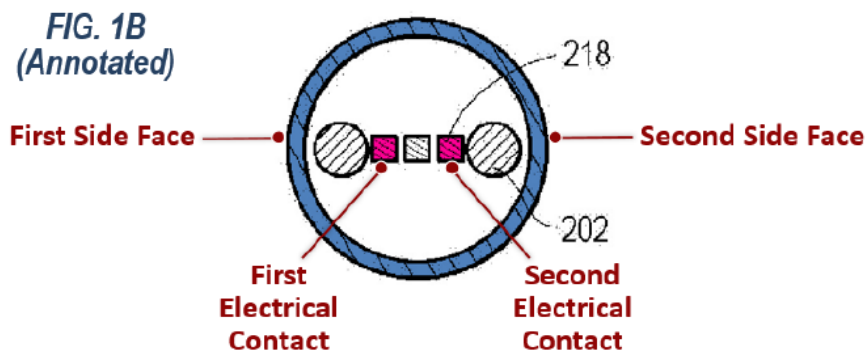
Pet. 43. Verleur’s Figure 12 “discloses a pod assembly (cartomizer 200/200A) for an e-vapor apparatus (vaporizer 10).” *Id.*; see Ex. 1014 ¶¶ 16–18, 20. Petitioner adds labels to identify a “Cartomizer” on the left and a “Vaporizer” on the right in this illustration. Pet. 47. Petitioner adds a blue dashed line around the surface of cartomizer 200A and, further, adds gray shading to the vaporizer, that is, electronic cigarette 10. *Id.*

Verleur discloses that, during normal operation, cartomizer 200A “is inserted into the chamber” of electronic cigarette 10. Ex. 1014 ¶ 5 (describing “a cartomizer insertable” into a “chamber” located in a “cartomizer receiving segment” of a vaporizer “shell”); see *id.* at Fig. 1A, ¶ 42 (illustrating and describing the “insertable” cartomizer designed for introduction into chamber 108 of outer shell 106).

Patent Owner, for its part, argues that Petitioner’s own annotated figures from Verleur establish that cartomizer 200A “has one continuous, undivided” external surface. Prelim. Resp. 53. Patent Owner’s argument is consistent with the surface of the cartomizer as depicted above in Figure 12.

See supra 22 (blue dashed line added by Petitioner to Figure 12, emphasizing cartomizer 200A, which appears to have one continuous cylindrical external surface). Against that backdrop, for reasons that follow, we agree with Patent Owner that Petitioner does not show sufficiently that Verleur would have suggested to an ordinarily skilled artisan a cartomizer having the plurality of external surfaces required by claim 1. Pet. 47–50, 67 (Petitioner’s information on point); *see* Prelim. Resp. 52–55 (Patent Owner’s counter information).

For example, referring to Verleur’s Figure 1B, Petitioner selects, without adequate explanation, two points on a circular cross section of the cartomizer as establishing first and second side faces of the external surface. Pet. 67. We reproduce below Petitioner’s annotated version of Figure 1B.



Pet. 67; *see* Prelim. Resp. 52 (reproducing this annotated figure). Verleur’s Figure 1B illustrates a lateral cross sectional view of Verleur’s e-cigarette, namely, “the end of the inserted cartomizer.” Ex. 1014 ¶ 8. The cross section is circular in shape. Petitioner adds red labels that, *inter alia*, identify two points on the external surface of the circular cross section as first and second side faces.

Petitioner assigns labels, “First Side Face” and “Second Side Face,” to two points on the surface of a circle, but that endeavor is ineffective to

explain why Figure 1B would have suggested to an ordinarily skilled artisan a cartomizer having a plurality of external surfaces. Pet. 67. Petitioner's annotations are not supported sufficiently by the disclosure of Verleur, which illustrates a cartomizer having a single external surface, not a plurality of external surfaces as recited in claim 1. *See, e.g.*, Pet. 16, 39, 40, 56, 67, 70 (reproducing Verleur's Figures 1A–1C, which consistently illustrate the circular cross section of the cartomizer, indicating one external surface).

Petitioner does not explain adequately why the annotations added to this or any other figure in Verleur are effective to demarcate an asserted front face, rear face, and two side faces in the single, continuous external surface of Verleur's cartomizer. *See* Pet. 47–50, 67; *see* Prelim. Resp. 53–54 (pointing out that Petitioner's annotations are not explained adequately). For example, Petitioner does not explain where one surface ends or another begins (Pet. 47–50) and no explanation is evident upon review of the figures themselves. *See, e.g.*, Ex. 1014, Figs. 1B–C, 2A–B (consistently illustrating Verleur's cartomizer as having a circular cross section); *see also* Ex. 1014, Figs. 4, 5, 12, 15 (consistently illustrating the cartomizer as having one continuous cylindrical external surface).

Petitioner argues that three paragraphs in Verleur support the proposition that the reference would have suggested a cartomizer having “sides.” Pet. 48–49 (citing Ex. 1014 ¶¶ 34, 42, 43). The first two paragraphs cited by Petitioner do not refer to sides at all. Ex. 1014 ¶¶ 34, 42; *see* Prelim. Resp. 54 and n.10 (providing Patent Owner's related argument). Petitioner does not articulate adequately a reason why those disclosures would have suggested a cartomizer having a plurality of external surfaces, and no

explanation is evident upon review of the disclosures themselves. Pet. 48–49; *see* Ex. 1014 ¶¶ 34, 42.

The third paragraph refers to “holes or ducts provided, for instance, in sides of” an “outer shell” in Verleur’s device. Ex. 1014 ¶ 43; *see id.* at Fig. 1 (illustrating “outer shell 106”). Petitioner does not explain adequately the significance of that disclosure. Pet. 48–49. For example, Petitioner argues, “[T]o the extent the accused product has faces as Patent Owner contends” in the District Court case, “the cartomizer of Verleur has faces” as well. *Id.* at 48. The disclosure of Verleur, however, consistently indicates that cartomizer 200 has one continuous, undivided cylindrical external surface. Ex. 1014, Figs. 1A–1C, 2A–B, 4, 5, 12, 15 (illustrating cartomizer 200). It is not clear on this record, and Petitioner does not explain adequately, how or why Patent Owner’s extrinsic contentions in the District Court case are sufficient to support Petitioner’s contention that Verleur’s single continuous external surface has four faces as recited in claim 1. Pet. 48–49. For example, Petitioner does not compare the shape of the accused product with the shape of cartomizer 200 disclosed in Verleur. Even if Petitioner had made such a comparison, however, the Petition is deficient for failure to explain why the Board should view Patent Owner’s District Court infringement contentions as sufficient to show that the claim limitation reads on the prior art.

We agree with Patent Owner that Petitioner directs us to no disclosure in Verleur that “makes any mention of multiple surfaces, faces, or even a front and rear of the device.” Prelim. Resp. 52 (citing Ex. 1014 ¶¶ 34, 42). Petitioner rests instead on Mr. Leinsing’s opinion that an ordinarily skilled artisan would have viewed Verleur’s cartomizer as having “faces

corresponding to the vaporizer's sides." Ex. 1005 ¶ 326; *see* Pet. 48–49 (citing Ex. 1005 ¶¶ 325–326); Ex. 1014, Fig. 1, ¶ 43. For support, however, Mr. Leinsing directs us to the same three paragraphs in Verleur cited in the Petition. Ex. 1005 ¶¶ 325–326 (citing Ex. 1014 ¶¶ 34, 42, 43).

These three paragraphs in Verleur relate to Figure 1, which unambiguously illustrates cartomizer 200/200A as having “a cylindrical cross section.” Prelim. Resp. 52–53; *see* Ex. 1014, Figs. 1A–C, ¶¶ 6–9. Mr. Leinsing does not explain why an ordinarily skilled artisan would have interpreted these disclosures as suggesting a plurality of external surfaces. *See* Ex. 1005 ¶¶ 325–326. Mr. Leinsing simply repeats conclusory assertions made in the Petition. *Compare* Pet. 47–49, *with* Ex. 1005 ¶¶ 325–326. Without adequate objective proof, Mr. Leinsing's bare opinion that Verleur would have suggested a cartomizer having a plurality of external surfaces is entitled to little weight. *See Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 294 (Fed. Cir. 1985) (“Lack of factual support” underpinning an expert's opinion “may render the testimony of little probative value in a validity determination.”).

Even if we accept that the “outer shell” of Verleur's vaporizer may have external “sides,” as arguably suggested by Verleur's Figure 15, Mr. Leinsing does not explain adequately why that would have suggested that the cartomizer, designed for insertion into an internal chamber of that “outer shell,” also has a plurality of sides. Ex. 1014 ¶ 43; *see* Ex. 1005 ¶ 326 (Mr. Leinsing's testimony, citing Ex. 1014 ¶ 43). On the contrary, Mr. Leinsing, in a single sentence unsupported by a citation to any objective proof, posits that an ordinarily skilled artisan “would have known that for the cartomizer to be inserted into and engaged with the vaporizer, the

cartomizer would have faces corresponding to the vaporizer's sides."

Ex. 1005 ¶ 326. Patent Owner disagrees, arguing, "Even if the vaporizer has external 'sides,' that does not necessarily mean that the *internal* surfaces that mate with the cartomizer must share those sides." Prelim. Resp. 54 n.11 (emphasis in original).

Patent Owner's argument, on that crucial point, is consistent with the disclosure of Verleur. *See, e.g.*, Ex. 1014 ¶¶ 42, 43 (Verleur, explaining that "outer shell 106" may have "sides," and "cartomizer 200A is inserted into chamber 108" "defined by outer shell 106 and electrical connector 120"). Like Verleur's Figure 12, Figure 15 illustrates a cartomizer that appears to have one continuous cylindrical external surface. *See* Ex. 1014, Fig. 15 (cartomizer 200A–C), ¶¶ 58, 59 (describing Figure 15 and disclosing that cartomizer 200/200A/200B/200C may be inserted into chamber 108). Neither Petitioner nor Mr. Leinsing directs us to any disclosure in Verleur suggesting that cartomizer 200/200A/200B/200C, as illustrated in Figure 15, has a different shape from cartomizer 200/200A/200B/200C, as illustrated in Figure 12. On that point, we note that a single vertical line is visible in the external surface of cartomizer 200 in one of three views of that element illustrated in Figure 15. *See id.* at Fig. 15 (cartomizer 200A). Neither Petitioner nor Mr. Leinsing, however, addresses that line, much less explains why it would have suggested a cartomizer having a plurality of external surfaces. Pet. 47–59; Ex. 1005 ¶¶ 325–326.

Patent Owner identifies additional information that casts doubt on Mr. Leinsing's opinion that Verleur discloses a cartomizer having a plurality of external surfaces. Prelim. Resp. 53–55 (citing Ex. 2001 ¶¶ 110–114). Specifically, Patent Owner directs us to Mr. McAlexander's opinion that

Verleur's cartomizer "does not have sides" but, rather, has "one continuous, undivided surface" as demonstrated by Petitioner's own annotated version of Verleur's Figure 1B, reproduced *supra* 23. Ex. 2001 ¶¶ 111–112. In Mr. McAlexander's further view, the cylindrical external surface of the cartomizer need not "change if the cartomizer is inserted into a shell that has sides – *e.g.*, the shell may have an interior cylindrical hole into which the cartomizer fits." *Id.* ¶ 113.

Mr. McAlexander's opinion finds express support in Verleur's disclosure. In that regard, we find significant that Figures 1 and 2 are cross-sectional drawings that squarely address the question at hand, namely, the number of external surfaces on "the end of the inserted cartomizer." Ex. 1014 ¶¶ 8, 11; Prelim. Resp. 54. Those figures show that the cartomizer has a circular cross section, which is consistent with one continuous cylindrical surface. *Id.* at Figs. 1A–1B, 2A–2B. Verleur's other figures confirm that point by illustrating the cartomizer as having one smooth and undivided external surface. *Id.* at Figs. 4, 5 12, 15.

Based on the information presented, we find Petitioner does not show sufficiently that any figure or other disclosure in Verleur would have suggested a cartomizer having a plurality of external surfaces. Pet. 47–50 (Petitioner's information on that issue). Instead, Petitioner directs us to figures from Verleur that consistently disclose a cartomizer that has "a circular cross section" and "one continuous, undivided" external surface. Prelim. Resp. 53–55; *see* Pet. 16–18, 39–40, 47–48, 55–56, 63, 67, 70, 77 (reproducing figures from Verleur). The annotations added by Petitioner do not alter the plain import of those disclosures. *See, e.g.*, Pet. 43, 64

(annotated versions of Verleur’s Figure 1B, reproduced *supra* 23, and Figure 12, reproduced *supra* 22).

On this record, we find Petitioner does not show sufficiently that Verleur discloses a cartomizer having “a plurality of external surfaces” as specified in claim 1. Ex. 1004, 18:46.

b. Independent Claim 10 and
Dependent Claims 2, 3, 5, 7–9, and 11–15

Like claim 1, independent claim 10 specifies a pod assembly having “a plurality of external surfaces” that include “a front face, a back face,” and two “side” faces. Ex. 1004, 19:28, 19:30–32. Petitioner relies on the information presented in the connection with claim 1 to support its view that Verleur would have suggested this limitation of claim 10. *See* Pet. 68–69.

Each dependent challenged claim specifies or inherits this same limitation from claim 1 or claim 10. Ex. 1004, 18:65–19:26, 20:8–23 (dependent claims 2, 3, 5, 7–9, and 11–15). Petitioner presents no additional information, tending to establish that Verleur discloses these limitations, in the challenges directed to the dependent claims. *See* Pet. 58–67, 71–78.

Accordingly, our reasoning provided above in the context of claim 1 applies with equal force to independent claim 10 as well as dependent claims 2, 3, 5, 7–9, and 11–15. Petitioner does not show sufficiently that Verleur would have suggested a pod assembly characterized by the specified plurality of external surfaces. On this record, therefore, Petitioner is not reasonably likely to prevail in showing that the subject matter of any challenged claim would have been obvious over Verleur.

IV. CONCLUSION

For the above reasons, we *deny* the Petition and do not institute an *inter partes* review.

V. ORDER

It is

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

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