

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AROMA360, LLC,
Petitioner,

v.

AIR ESSSENTIALS, INC.,
Patent Owner.

IPR2025-00705
Patent 9,527,094 B1

Before MITCHELL G. WEATHERLY, ERIC C. JESCHKE, and
RICHARD H. MARSCHALL, *Administrative Patent Judges*.

JESCHKE, *Administrative Patent Judge*.

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

I. BACKGROUND

Petitioner Aroma360, LLC filed a Petition to institute *inter partes* review of claims 7–9 and 11 of U.S. Patent No. 9,527,094 B1 (Ex. 1001, “the challenged patent”). Paper 2 (“Pet.”). Patent Owner Air Essentials, Inc. timely filed a Preliminary Response. Paper 7 (“Prelim. Resp.”).

Under the current Interim Process, decisions on whether to institute post-grant review are bifurcated between (1) discretionary considerations and (2) merits and other non-discretionary considerations. *See* Memorandum from Coke Morgan Stewart to All PTAB Judges (Mar. 26, 2025), *available at* <https://www.uspto.gov/sites/default/files/documents/InterimProcesses-PTABWorkloadMgmt-20250326.pdf> (“Interim Process Memo”) at 1. Patent Owner filed a brief addressing discretionary denial. Paper 6. After reviewing that briefing, the Director declined to deny *inter partes* review based on discretionary considerations and referred the proceeding to this panel. Paper 8.

The Board has authority to determine whether to institute *inter partes* review. *See* 35 U.S.C. § 314; 37 C.F.R. § 42.4(a) (2024) (“The Board institutes the trial on behalf of the Director.”). *Inter partes* review may not be instituted “unless . . . the information presented in the petition . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314. Upon consideration of the evidence and arguments in the record, for the reasons below, we determine that the information presented shows a reasonable likelihood that Petitioner would prevail with respect to at least one of the challenged claims. We thus institute *inter partes* review on all challenged claims on all asserted grounds. *See SAS Inst. Inc. v. Iancu*, 584

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U.S. 357, 362–63, 369–70 (2018); 37 C.F.R. § 42.108(a) (“When instituting *inter partes* review, the Board will authorize the review to proceed on all of the challenged claims and on all grounds of unpatentability asserted for each claim.”).

A. Related Proceedings

The parties identify a proceeding in the U.S. District Court for the Southern District of Florida involving the challenged patent: *Air Essentials, Inc. v. Aroma360, LLC*, No. 1:24-cv-20594-KMW (S.D. Fla.), filed February 15, 2024 (“the Florida Litigation”). Pet. 1; Paper 4 (Patent Owner’s Mandatory Notice) at 2. The Florida Litigation also involves U.S. Patent No. 10,583,449 B1 (“the ’449 patent”) and U.S. Patent No. 10,092,918 B1 (“the ’918 patent”). The Florida Litigation was stayed on April 8, 2025. *See* IPR2025-00706, Paper 5; IPR2025-00707, Paper 5.

Petitioner also filed petitions for *inter partes* review of (1) claims 1, 4, and 7–10 of the ’449 patent in IPR2025-00706 and (2) claims 1 and 3–8 of the ’918 patent in IPR2025-00707. Concurrent with this Decision, the Board institutes *inter partes* review in IPR2025-00706 and IPR2025-00707.

B. The Challenged Patent

The challenged patent “relates generally to the field of dispersion of various fluids including, but not limited to, fragrant oils, essential oils, odor neutralizers, disinfectants, e.g., triethylene glycol, air sanitizers, and the like, into a generally enclosed airspace.” Ex. 1001, 1:6–10. According to the challenged patent, “there is a need for a fluid dispersion assembly that is designed to significantly reduce the amount of noise generated during operation” and to operate “quietly while generating a fluid dispersion in air having a uniform particle size distribution, such that dosing of an airspace

with a particular liquid . . . can be predicted within acceptable limits.” *Id.* at 1:32–40.

Figure 2 is reproduced below:

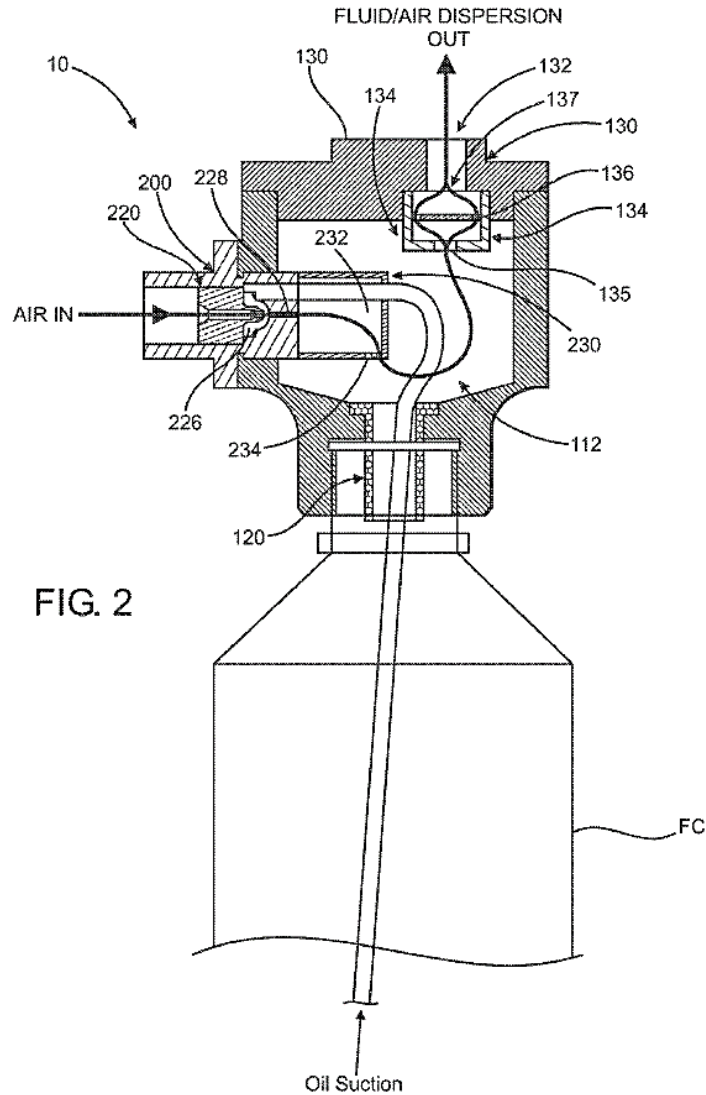


Figure 2 depicts a cross-sectional elevation view of a fluid dispersion assembly 10, powered by a compressed air source. Ex. 1001, 2:48–50, 2:66–3:2. An unnumbered diffusion unit “at least partially defines a diffusion chamber 112, and in at least one embodiment, the diffusion chamber 112 is substantially enclosed within [the] diffusion unit.” *Id.* at

3:24–27.¹ Discharge port 132 “provides a point of release of the fluid dispersion from the diffusion chamber 112 into the airspace surrounding the fluid dispersion assembly 10.” *Id.* at 3:54–58.

Depicted diffusion assembly 200 “comprises an air inlet 210 and an atomizer assembly 220.” Ex. 1001, 5:5–6. Atomizer assembly 220, in turn, “comprises an atomizer air inlet channel 222, a mixing chamber 226, and an atomizer exhaust channel 228.” *Id.* at 5:7–9. This embodiment also includes silencer assembly 134 in communication with discharge port 132. *Id.* at 7:49–52. Silencer assembly 134 comprises “baffle 136 disposed in a silencer chamber 138 between a silencer inlet 135 and a silencer outlet 137” and “serves to further minimize the amount of noise generated during operation of the fluid dispersion assembly 10.” *Id.* at 7:52–57.

C. The Challenged Claims

Petitioner challenges claims 7–9 and 11, of which only claim 7 is independent. Independent claim 7 is reproduced below, reformatted from the version provided in the challenged patent and with bracketed labels added to identify each clause:

7. [7PRE] A fluid dispersion assembly is operatively interconnected to a container of an operative fluid and a compressed air source to generate and discharge a fluid dispersion into a surrounding airspace, said fluid dispersion assembly comprising:

[7A] a diffusion unit at least partially defining a diffusion chamber,

[7B] a discharge port disposed in fluid communication between said diffusion chamber and the surrounding airspace,

¹ In this Decision, we omit emphasis on reference numerals in quotations from the challenged patent and prior art references.

[7C] a diffusion assembly disposed in an operative engagement with said diffusion unit, [7D] wherein said diffusion assembly comprises an atomizer assembly, and

[7E] a silencer assembly having a silencer inlet, a silencer outlet, and a baffle, [7F] wherein said baffle partially restricts movement of the fluid dispersion through said silencer chamber from said silencer inlet to said silencer outlet, thereby dampening sound waves generated during operation of said fluid dispersion assembly.

Ex. 1001, 9:24–42.²

D. Asserted Grounds of Unpatentability

Petitioner challenges claims 7–9 and 11 on the following grounds:

Claim(s) Challenged	35 U.S.C. §³	Reference(s)/Basis
7–9, 11	103(a)	Sevy ⁴
7–9, 11	103(a)	Sevy, Zeng ⁵

² We adopt and apply below Petitioner’s labels for the elements of the challenged claims. *See* Pet. (Appendix – Claim Limitation Listing).

³ The Leahy-Smith America Invents Act (“AIA”) included revisions to 35 U.S.C. §§ 102, 103 that became effective on March 16, 2013. Pub. L. No. 112-29, §§ 3(b)–3(c), 3(n)(1), 125 Stat. 284, 285–87, 293 (2011). Because there is no dispute that the challenged claims have an effective filing date before March 16, 2013, we apply the pre-AIA versions of these statutes. We would reach the same outcome, however, under the AIA versions.

⁴ United States Published Patent Application US 2010/0084484 A1, published April 8, 2010 (Ex. 1009, “Sevy”).

⁵ Taiwanese Patent Office Publication 200528150, published September 1, 2005 (Ex. 1010 (Chinese version) and Ex. 1011 (certified translation), “Zeng”).

Claim(s) Challenged	35 U.S.C. §³	Reference(s)/Basis
7–9, 11	103(a)	Goubet ⁶
7–9, 11	103(a)	Goubet, Kaiser ⁷
7–9, 11	103(a)	Gao ⁸
7–9, 11	103(a)	Gao, Zeng

Petitioner supports its challenges with a declaration from Dr. Christopher White. Ex. 1002 (“White Decl.”).

II. DISCUSSION

A. The Level of Ordinary Skill in the Art

The level of ordinary skill in the art is “a prism or lens” through which we view the prior art and the claimed invention. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). The person of ordinary skill in the art is a hypothetical person presumed to have known the relevant prior art. *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995). In determining the level of ordinary skill in the art, we may consider certain factors, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology;

⁶ French Patent and Trademark Office Publication FR 2 886 160, published December 1, 2006 (Ex. 1015 (French version) and Ex. 1016 (English translation), “Goubet”).

⁷ Sebastian Kaiser et al., *The Electrospray and Combustion at the Mesoscale*, 51 J. Mass Spectrom. Soc. Jpn. 42 (2003) (Ex. 1014, “Kaiser”).

⁸ Chinese National Intellectual Property Administration Utility Model Patent CN 201832737, published May 18, 2011 (Ex. 1012 (Chinese version) and Ex. 1013 (certified translation), “Gao”).

and educational level of active workers in the field.” *Id.* (internal quotation marks and citation omitted).

Petitioner contends, with accompanying declaration testimony, that a person having ordinary skill in the art would have had either:

- (1) a bachelor’s degree in mechanical engineering, aerospace engineering, chemical engineering, or a similar engineering field, with at least two years of work experience in fluid dynamics or fluid systems engineering; or
- (2) a master’s degree in mechanical engineering, aerospace engineering, chemical engineering, or a similar engineering field, with at least one year of work experience in fluid dynamics or fluid systems engineering.

Pet. 10 (citing White Decl. ¶¶ 37–44).

Patent Owner does not dispute Petitioner’s proposed definition of the level of ordinary skill in the art, which appears generally consistent with the record at this stage of the proceeding, including the prior art. *See GPAC Inc.*, 57 F.3d at 1579. We remove the phrase “at least” in both listed options, however, as that phrase adds ambiguity. Patent Owner does not argue at this stage of the proceeding that Petitioner’s proposal for the level of ordinary skill leads to an improper understanding of how a skilled artisan would understand either the challenged patent or the prior art. For purposes of this Decision, we adopt the definition of the level of ordinary skill in the art proposed by Petitioner, as revised above.

B. Claim Construction

In *inter partes* reviews, the Board interprets claim language using the same claim construction standard that would be used in a civil action under 35 U.S.C. § 282(b), as described in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). *See* 37 C.F.R. § 42.100(b). Under that standard, we generally give claim terms their ordinary and customary meaning, as

would be understood by a person of ordinary skill in the art at the time of the invention, in light of the language of the claims, the specification, and the prosecution history. *See Phillips*, 415 F.3d at 1313–14. Although extrinsic evidence, when available, may also be useful when construing claim terms under this standard, extrinsic evidence should be considered in the context of the intrinsic evidence. *See id.* at 1317–19.

Neither Petitioner nor Patent Owner propose explicit constructions for any claim terms. Pet. 10–11; *see generally* Prelim. Resp. At this stage of the proceeding and based on the current record, we need not construe explicitly any claim terms because doing so would not change the outcome of the analysis below. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those 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))).

C. Asserted Obviousness of Claims 7–9 and 11 Based on Sevy

Petitioner asserts that claims 7–9 and 11 of the challenged patent would have been obvious based on Sevy. Pet. 3–4, 19–36. Patent Owner provides arguments addressing this asserted ground. Prelim. Resp. 3–11. We first summarize aspects of the relied-upon prior art.

1. Overview of Sevy

Sevy relates to “atomizers and, more particularly, to novel systems and methods for integrating air supplies, reservoirs and atomizers into an integrated system.” Ex. 1009 ¶ 2. Sevy discloses that “it would be an advance in the art to provide an atomizer that provides a better atomization

or a smaller mean or average size of droplet in the distribution of atomized droplets compared with prior art devices capable of atomizing.” *Id.* ¶ 9.

Figure 1 of Sevy is reproduced below:

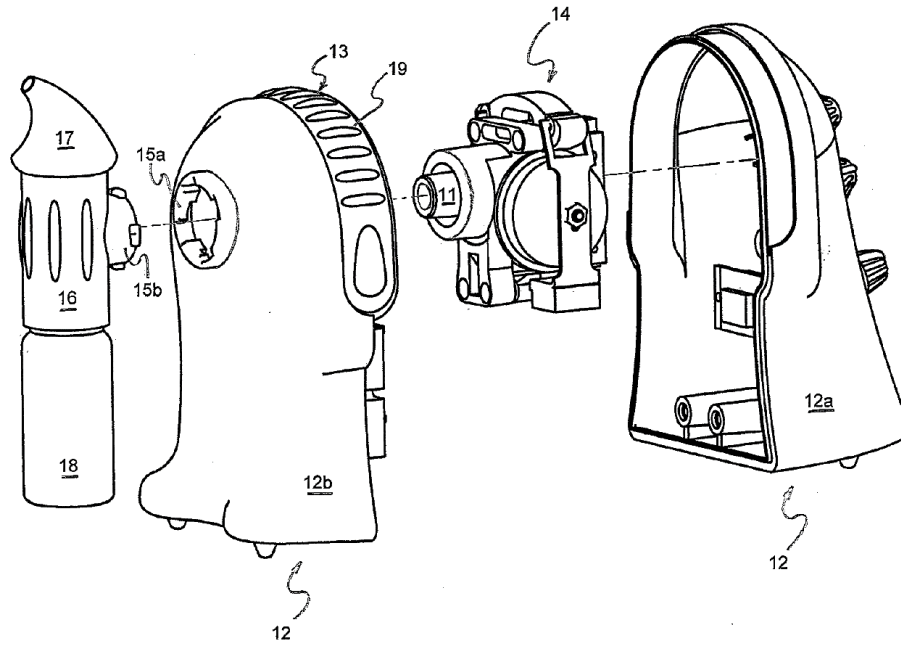


FIG-1

Figure 1 is an exploded view of an integrated atomizer apparatus. Ex. 1009 ¶ 31. The depicted embodiment includes housing 12, pump 14 (with outlet 11 from pump 14), atomizer 16, director 17, and reservoir 18. *Id.* ¶ 41. Sevy discloses that “[a]ir from the pump 14 drives atomization in the atomizer 16 to discharge atomized liquids out the director 17” with the liquids “drawn by the atomizer 16 from the reservoir 18.” *Id.*

Figure 9 is reproduced below:

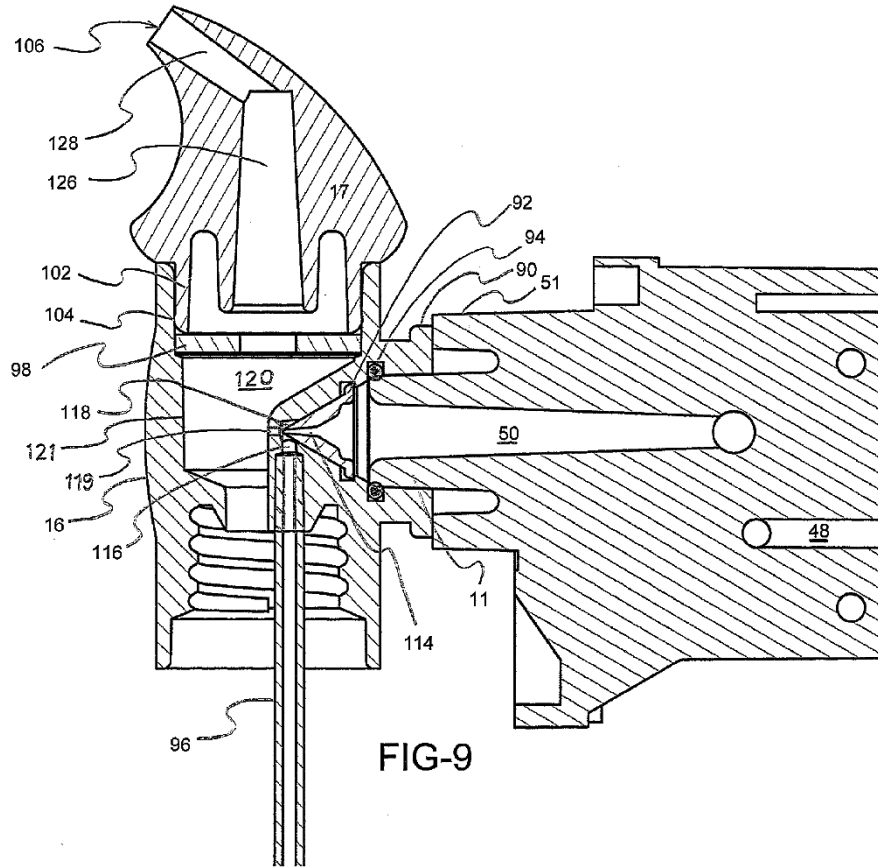


Figure 9 is a “detailed cross-sectional, side elevation view of the pump body and the atomizer body.” Ex. 1009 ¶ 39. In this embodiment, nozzle 92 encloses channel 114 leading from passage 50 to orifice 118 and exit orifice 119 permits discharge of fluids, including air from orifice 118 and liquid from siphon tube 96. *Id.* ¶¶ 79–80. Sevy discloses that the “entire mixture of air and droplets passes through the exit orifice 119 toward the separator 120, and particularly toward the wall 121 thereof.” *Id.* ¶ 82.

2. Independent Claim 7

For independent claim 7, Petitioner contends that Sevy discloses or suggests each limitation. Pet. 19–33. To support its arguments, Petitioner identifies certain passages in the cited references and explains the

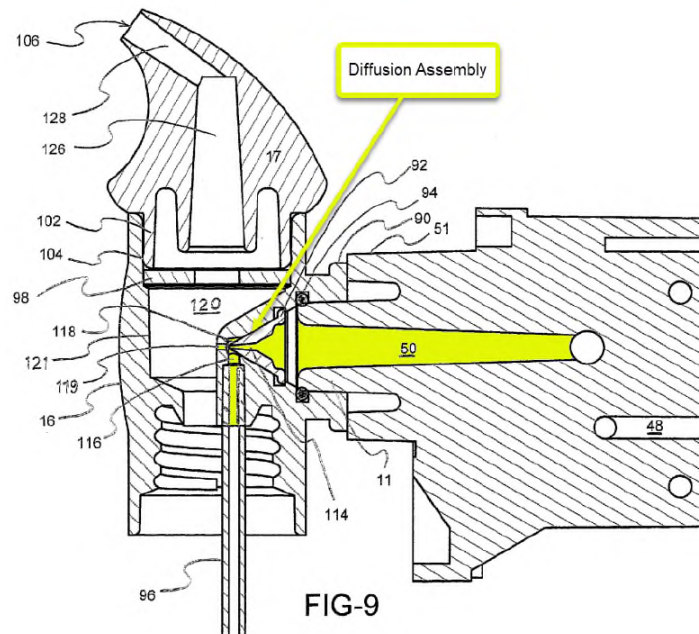
significance of each passage with respect to the corresponding claim limitation. *Id.* Petitioner also articulates, for an alternative position, reasons to modify aspects of Sevy. Pet. 32–33. Patent Owner (1) argues that Sevy lacks clauses 7C and 7D and the “fluid dispersion” limitation in clause 7F and (2) argues that Sevy does not satisfy the “baffle” limitation in clause 7E] or the “dampening sound waves” limitation in clause 7F. *See* Prelim. Resp. 3–9.

We have reviewed Petitioner’s contentions with respect to claim 7, and for the reasons below, we determine that the Petition shows a reasonable likelihood that Petitioner would prevail in demonstrating that claim 7 would have been obvious based on Sevy. We address in turn each of Patent Owner’s arguments.

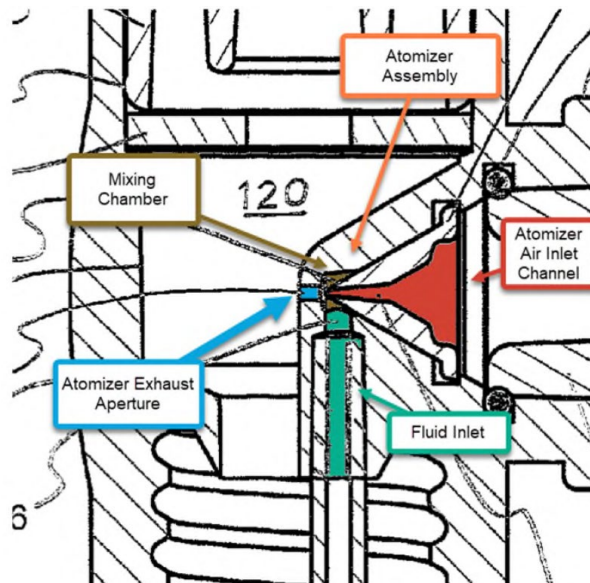
a. Clauses 7C and 7D and the “Fluid Dispersion” Limitation

Clause 7C recites “a diffusion assembly disposed in an operative engagement with said diffusion unit” and clause 7D recites “wherein said diffusion assembly comprises an atomizer assembly.” Ex. 1001, 9:33–35. Clause 7F recites “wherein said baffle partially restricts movement of the *fluid dispersion* through said silencer chamber from said silencer inlet to said silencer outlet, thereby dampening sound waves generated during operation of said fluid dispersion assembly.” *Id.* at 9:37–42 (emphasis added).

As the “diffusion assembly” in Sevy, Petitioner identifies “the combination of the air inlet (*e.g.*, passage 50) and the atomizer assembly that atomizes the liquid,” as shown in yellow shading in the annotated version of Figure 9 of Sevy below:



Pet. 23–24 (citing White Decl. ¶¶ 155–157). In the annotated version of Figure 9 here, Petitioner added a text box and yellow shading identifying a “Diffusion Assembly.” *Id.* As the “atomizer assembly,” Petitioner identifies certain structures in the annotated partial image of Figure 9 of Sevy below:



Pet. 25; *see also* Pet. 26 (citing White Decl. ¶¶ 158–165) (identifying the structures of the “atomizer assembly”). In the annotated partial image of

Figure 9 here, Petitioner added (1) a text box and red shading identifying an “Atomizer Air Inlet Channel,” (2) a text box and teal shading identifying a “Fluid Inlet,” (3) a text box and blue shading identifying an “Atomizer Exhaust Aperture,” (4) a text box and brown shading identifying a “Mixing Chamber,” and (5) a text box identifying an “Atomizer Assembly.” Pet. 25.

Patent Owner argues that the identified features in Sevy are not the “claimed integrated diffusion and atomizer assemblies” because Sevy, “by contrast, produces a spray of non-uniform droplets that explicitly requires downstream separation.” Prelim. Resp. 4. In support, Patent Owner contends that “Sevy acknowledges that ‘droplets that cannot move with the air flow, typically because they have too large a size and mass, will strike the walls of the opening 100 or the separator plate 98’ and that Sevy ‘further describes airflows that ‘recapture and return most [of] the droplets above [certain] sizes back into the reservoir.’” *Id.* (alterations by Patent Owner) (quoting Ex. 1009 ¶¶ 69, 74). According to Patent Owner, “[t]he need for such post-formation correction^[9] demonstrates that Sevy’s components do not correspond to the claimed integrated diffusion and atomizer assemblies, nor do they generate a fluid dispersion within the diffusion chamber prior to discharge.” *Id.*

On the current record, this argument does not identify a deficiency in Petitioner’s position. Specifically, even assuming as correct Patent Owner’s

⁹ In its Preliminary Response, Patent Owner appears to use different terms for the same concept: “downstream separation”; “post-formation correction”; “post-atomization correction”; and “droplet correction.” *See, e.g.*, Prelim. Resp. 3 (“downstream separation”), 4 (“post-formation correction”), 8 (“post-atomization correction”), 10 (“droplet correction”). In any response, Patent Owner should clarify the scope of these terms.

assertion that Sevy “requires downstream separation,” Patent Owner has not adequately explained why such a requirement would fall outside of the scope of independent claim 7. *See Elbit Sys. of Am., LLC v. Thales Visionix, Inc.*, 881 F.3d 1354, 1359 (Fed. Cir. 2018) (“‘[A]ttorney argument is not evidence’ and cannot rebut other admitted evidence.” (quoting *Icon Health & Fitness, Inc. v. Strava, Inc.*, 849 F.3d 1034, 1043 (Fed. Cir. 2017))). For example, Patent Owner has not adequately explained, on the current record, what limitations in clauses 7C or 7D (or elsewhere) preclude the use of “downstream separation” (assuming that is disclosed in Sevy). *See* Prelim. Resp. 4; *see also In re Self*, 671 F.2d 1344, 1348 (CCPA 1982) (rejecting arguments “not based on limitations appearing in the claims”).

Patent Owner also appears to rely on the “fluid dispersion” limitation in clause 7F as the basis for this argument, asserting that “Sevy explicitly acknowledges that its atomized spray still contains oversized droplets requiring downstream separation” whereas “[t]he claimed invention, by contrast, is configured to generate a fluid dispersion suitable for discharge, within the diffusion chamber, without reliance on post-atomization correction.” Prelim. Resp. 8 (citing Ex. 1009 ¶¶ 69–70; Ex. 1001, 9:60–64).

This argument also does not identify a deficiency in Petitioner’s position. As an initial matter, Patent Owner does not explain why *independent claim 7* requires creation of a “fluid dispersion” in a “diffusion chamber,” when that particular requirement is not recited until *dependent claim 11* (cited by Patent Owner in support of this argument, which is ostensibly focused on claim 7). *Compare* Prelim. Resp. 3–9 (presenting this argument addressing claim 7), *with id.* at 8 (citing claim 11 at Ex. 1001, 9:60–64 in support of this argument); *see Liebel-Flarsheim Co. v. Medrad*,

Inc., 358 F.3d 898, 910 (Fed. Cir. 2004) (“[T]he presence of a dependent claim that adds a particular limitation raises a presumption that the limitation in question is not found in the independent claim.”). Moreover, Patent Owner does not adequately explain why independent claim 7 *precludes* the use of “downstream separation” to create a “fluid dispersion” as recited. *See In re Self*, 671 F.2d at 1348.

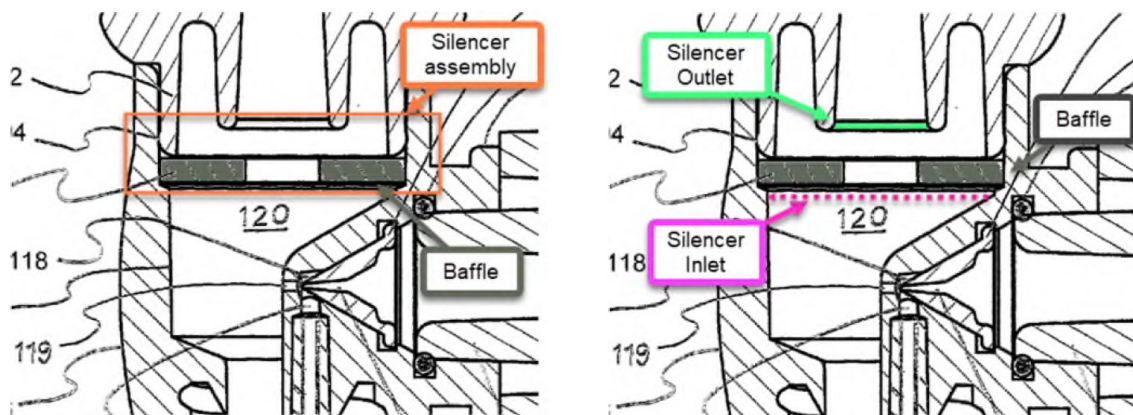
As to the argument that Sevy does not disclose a “fluid dispersion” (Prelim. Resp. 8), we note that the parties have stipulated in the stayed Florida Litigation that “fluid dispersion” in clause 7F means a “mixture of an operative fluid in air comprising a plurality of *substantially uniform droplets* (having substantially the same diameter) of the operative fluid dispersed throughout the air.” *See* Ex. 1018, Exhibit A (emphasis added). Petitioner provides a thorough discussion of (1) why one of ordinary skill in the art would have viewed Sevy as satisfying the stipulated requirement for “substantially uniform droplets” (even with its 1–5 μm droplet sizes) and, (2) if the “substantially uniform droplet” requirement is not inherently met, how one of ordinary skill in the art would have modified Sevy to satisfy that requirement. *See* Pet. 30–33 (citing White Decl. ¶¶ 91–118, 178–188); *see also* Ex. 1009 ¶ 74 (“Typical diameters are on the order of 1–5 microns.”). Patent Owner, in contrast, argues that Sevy does not satisfy the “substantially uniform droplet” requirement without citing persuasive evidence to support that argument, and Patent Owner does not address Petitioner’s proposed alternative modification to Sevy. *See* Prelim. Resp. 3–5, 8–9.

On the current record, we determine that Petitioner has made a sufficient showing that Sevy discloses or suggests clauses 7C and 7D, and

has also made a sufficient showing that Sevy (or Sevy as modified) discloses or suggests the “fluid dispersion” limitation in clause 7F.

b. The “Baffle” Limitation and the “Dampening Sound Waves” Limitation

Clause 7E recites “a silencer assembly having a silencer inlet, a silencer outlet, and *a baffle*.” Ex. 1001, 9:36–37 (emphasis added). Clause 7F recites “wherein said baffle partially restricts movement of the fluid dispersion through said silencer chamber from said silencer inlet to said silencer outlet, thereby *dampening sound waves* generated during operation of said fluid dispersion assembly.” Ex. 1001, 9:37–42 (emphasis added). Petitioner identifies the recited structures, including the “baffle,” in these two annotated partial images of Figure 9 of Sevy:



Pet. 29; *see also* Pet. 26–30 (citing White Decl. ¶¶ 83, 84, 97, 160–177). In the annotated partial image of Figure 9 on the left, Petitioner added (1) a text box and orange box identifying a “Silencer assembly” and (2) a text box and gray shading identifying a “Baffle.” Pet. 29. In the annotated partial image of Figure 9 on the right, Petitioner added (1) a text box and gray shading identifying a “Baffle,” (2) a text box and dotted pink line identifying a “Silencer Inlet,” and (3) a text box and green line identifying a “Silencer Outlet.” *Id.* Petitioner states that one of ordinary skill in the art would have

understood that “separator plate 98 is a baffle” because that structure is “designed not only to restrict droplets over a certain size, but also to . . . disrupt and thoroughly mix the fluid dispersion.” Pet. 28 (citing White Decl. ¶¶ 83, 84, 97, 160–173).

Patent Owner argues that one of ordinary skill in the art would not have understood separator plate 98 in Sevy (in gray shading above) as a “baffle.” *See* Prelim. Resp. 5–7. Specifically, Patent Owner asserts that “Sevy does not mention or suggest that the separator plate 98 was intended or configured to dampen sound” and that “it would be inappropriate to disregard the structural and functional context of the baffle as part of the silencer assembly specifically configured to dampen sound waves.” *Id.* at 6 (citing Ex. 1001, 7:49–8:4). According to Patent Owner, Sevy “show[s] no recognition of noise attenuation, and its separator plate is explicitly characterized as a droplet separator—not as a component of a silencer assembly.” *Id.* at 6–7 (citing Ex. 1009 ¶ 70).

On the current record, this argument does not identify a deficiency in Petitioner’s position as to the “baffle” limitation. In the Florida Litigation, the parties stipulated that a “baffle” is a “structure that disrupts the flow of the fluid dispersion through the fluid dispersion assembly.” Ex. 1018, Exhibit A. Petitioner provides a thorough discussion—supported by the testimony of Dr. White—as to why one of ordinary skill in the art would have understood that “a structure that disrupts fluid dispersion as it flows from the inlet to the outlet, such as a baffle, would also limit sound associated therewith.” Pet. 28 (citing White Decl. ¶¶ 174–177; Ex. 1001 6:1–8, 7:1–11, 7:64–8:2). Although Patent Owner is correct that Sevy does not expressly refer to the identified structures as a “silencer assembly” or as

dampening sound (Prelim. Resp. 6), the prior art need not expressly disclose such aspects. On the current record, Petitioner has adequately supported its inherency position that the identified structures—including the “baffle”—would *necessarily* result in “dampening sound waves” (as recited in clause 7F). *See Southwire Co. v. Cerro Wire LLC*, 870 F.3d 1306, 1311 (Fed. Cir. 2017) (“[W]e have emphasized that ‘the limitation at issue *necessarily* must be present’ in order to be inherently disclosed by the reference.” (quoting *PAR Pharm., Inc. v. TWI Pharm., Inc.*, 773 F.3d 1186, 1194–95 (Fed. Cir. 2014))).

Although the evidence summarized above adequately supports Petitioner’s preliminary showing as to the “baffle” limitation, as highlighted in the Petition, aspects of the challenged patent *further support* Petitioner’s inherency position by indicating that, in the relevant context, structure that disrupts the flow of a “fluid dispersion” causes dampening of sound waves. *See Ex. 1001*, 6:1–8, 7:64–8:2 (“Once again, as disclosed above with regard to the suppressor assembly 230, the disruption in the flow of the fluid dispersion though the silencer assembly 134 also creates a disruption and dampening of the sound waves associated therewith. As a result, the amount of noise generated during the operation of a fluid dispersion assembly 10 in accordance with the present specification is significantly reduced.”), *cited at* Pet. 28–29; *see also* Pet. 33 (citing the same as “teaching that sound dampening is a byproduct of disrupted fluid flow”).

On the current record, we determine that Petitioner has made a sufficient showing that Sevy discloses or suggests the “baffle” limitation in clause 7E and the “dampening sound waves” limitation of clause 7F.

c. Conclusion for Claim 7

Patent Owner does not offer any arguments specifically addressing the remaining limitations of claim 7 or Petitioner's reasons to modify Sevy (in the alternative) as proposed. *See* Prelim. Resp. 3–9. We have reviewed these aspects of Petitioner's contentions, and we determine that the Petition provides a sufficient showing, at this stage of the proceeding, that Sevy, when modified as proposed (in the alternative) satisfies each limitation and that one of ordinary skill in the art would have had reason to modify Sevy (in the alternative).

For the reasons above, we determine, based on the current record, that the Petition shows a reasonable likelihood that Petitioner would prevail in demonstrating that claim 7 would have been obvious based on Sevy.

3. Claims 8, 9, and 11

For dependent claims 8, 9, and 11, Petitioner contends that Sevy discloses or suggests each limitation. Pet. 33–36. Patent Owner presents several arguments, which we address in turn. First, Patent Owner relies on the arguments presented as to independent claim 7, from which claims 8, 9, and 11 depend. *See* Prelim. Resp. 9. For the reasons above, Patent Owner's arguments for claim 7 do not identify a deficiency as to claims 8, 9, and 11.

Second, Patent Owner paraphrases the language from claims 8 and 9, arguing that "Petitioner's arguments depend on nothing more than reinterpreting Sevy through *post hoc* rationalization." Prelim. Resp. 10. Patent Owner contends that "Sevy's components are not arranged or configured as claimed," but Patent Owner has not adequately explained the basis for that assertion. *See id.*

Lastly, as to claim 11, Patent Owner contends that “Petitioner’s assertion that Sevy teaches a diffusion chamber facilitating formation of the fluid dispersion before discharge is contradicted by Sevy’s explicit reliance on a separator plate, downstream of the alleged diffusion chamber, for droplet correction.” Prelim. Resp. 10 (citing Ex. 1001, 9:60–64). This argument repackages the prior argument that Sevy fails to provide a “fluid dispersion” and, instead, relies on “downstream separation.” *See* § II.C.2.a.

Because the Petition shows a reasonable likelihood that Petitioner would prevail with respect to at least one of the challenged claims based on at least one of the asserted grounds (*see* §§ II.C.2.c; II.E.2.d; II.G.2.b), we include claims 8, 9, and 11 in the context of this asserted ground in the instituted *inter partes* review. *See SAS*, 584 U.S. at 362–63, 369–70; 37 C.F.R. § 42.108(a).

D. Asserted Obviousness of Claims 7–9 and 11 Based on Sevy and Zeng

Petitioner asserts that claims 7–9 and 11 of the challenged patent would have been obvious based on Sevy and Zeng. Pet. 3–4, 37–43. Patent Owner provides arguments addressing this asserted ground. Prelim. Resp. 11–17. We first summarize aspects of the relied-upon prior art.

1. Overview of Zeng

In this asserted ground, Petitioner relies on Zeng, in addition to Sevy (summarized above (*see* § II.C.1)). Zeng discloses “an atomizer structure with a noise reduction function specially designed for an essential oil diffuser, so as to reduce the spray sound of the atomizer when atomizing an essential oil, and to reduce the distance and volume of atomization.” Ex. 1011 at 4.

Figure 3 of Zeng is reproduced below:

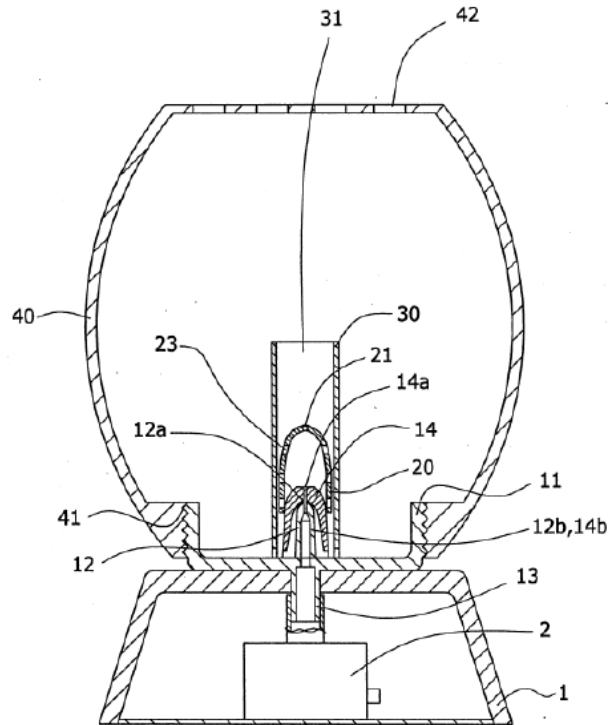


FIG. 3

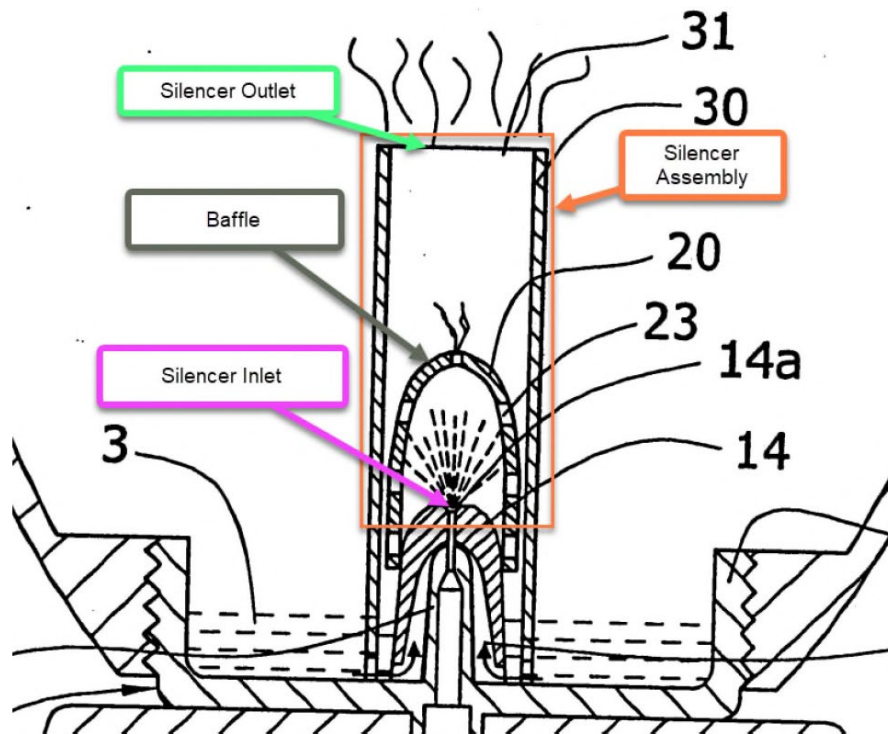
Figure 3 is a cross-sectional view of the disclosed assembly. Ex. 1011 at 8. The depicted aroma diffuser includes main body 1, noise reduction head 20, inner cover 30, and outer cover 40. *Id.* at 6.

2. Independent Claim 7

For independent claim 7, Petitioner contends that the proposed combination of Sevy and Zeng discloses each limitation. Pet. 37–43. Patent Owner (1) argues that the combination does not satisfy the requirements of clauses 7E and 7F, and (2) challenges the articulated reasons to combine Sevy and Zeng. *See* Prelim. Resp. 11–17. We address in turn each of these arguments.

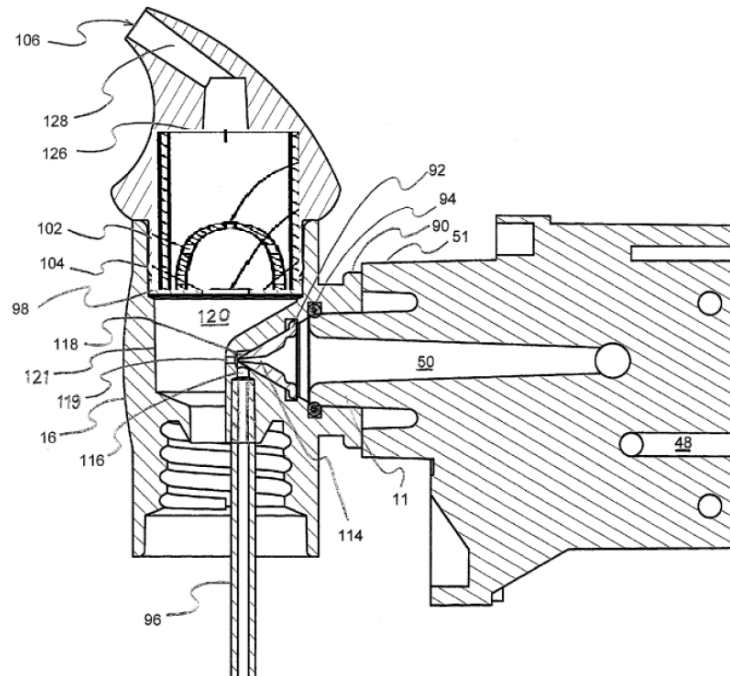
a. Clauses 7E and 7F

Clause 7E recites “a silencer assembly having a silencer inlet, a silencer outlet, and a baffle” and clause 7F recites “wherein said baffle partially restricts movement of the fluid dispersion through said silencer chamber from said silencer inlet to said silencer outlet, thereby dampening sound waves generated during operation of said fluid dispersion assembly.” Ex. 1001, 9:36–42. Addressing these clauses together, Petitioner identifies structures in Zeng as shown in this annotated partial image of Figure 4:



Pet. 40; *see also* Pet. 37–43 (citing White Decl. ¶¶ 206–214). In the annotated partial image of Figure 4 here, Petitioner added (1) a text box and orange rectangle identifying a “Silencer Assembly,” (2) a text box and green arrow identifying a “Silencer Outlet,” (3) a text box and gray arrow identifying a “Baffle,” and (4) a text box and pink arrow identifying a “Silencer Inlet.” Pet. 40.

Petitioner also provides the following composite image that “roughly illustrates” the proposed combination:



Pet. 42. The composite image includes features of Figure 9 of Sevy overlaid with a portion of Figure 4 of Zeng. *Id.*

Patent Owner contends that Petitioner’s discussion as to clause 7E “is conclusory and does not demonstrate that Zeng’s ‘silencer’ has the specific structure and function recited in the claims.” Prelim. Resp. 11–12. Patent Owner also argues that Petitioner has not adequately explained why the identified “baffle” in Zeng (noise reduction head 20) “achieves both flow disruption and sound dampening in the manner claimed” in clause 7F. *Id.* at 12; *see also id.* at 14–15 (similar).

On the current record, this argument does not identify a deficiency in Petitioner’s positions as to clauses 7E and 7F. The two annotated figures above as well as the accompanying text and cited testimony clearly identify the structures in Zeng (and the proposed combination) that correspond to the

claimed structures and how they perform the required functions. *See* Pet. 37–43; White Decl. ¶¶ 205–214. At this preliminary stage, Petitioner has adequately supported its inherency position that the identified “baffle” would *necessarily* disrupt flow (or “partially restrict[] movement”) of the “fluid dispersion” as required by clauses 7E and 7F. For example, Petitioner states (with support from Dr. White) that one of ordinary skill in the art would have recognized that

Zeng’s noise reduction head 20 is a dome shaped “orifice baffle” designed to dampen sound and the combination of the noise reduction head 20 and the inner cover 30 forms a silencer assembly that only permits small and uniform molecules (*e.g.*, fluid dispersion) to pass through the opening 31 of inner cover 30.

Pet. 40 (citing White Decl. ¶¶ 211–212); White Decl. ¶ 209. Patent Owner does not address this position, which is supported by the disclosures of Zeng, including the “plurality of air holes 23” in the structure of noise reduction head 20 through which “essential oil molecules . . . of different sizes . . . are allowed to pass.” *See* Ex. 1011 at 6, 7; *see also id.* at 5 (similar disclosures), *cited at* Pet. 38. The same statement in block quotes above also adequately supports Petitioner’s position as to the “dampening sound waves” limitation in clause 7F, which is further bolstered by the identified “baffle” being referred to as a “*noise reduction head.*” *See* Pet. 41 (“Zeng teaches that its noise reduction head 20 ***additionally*** has a sound dampening effect.”) (citing Ex. 1011 at 3¹⁰).

¹⁰ Some of Petitioner’s citations to Zeng, including this one, do not align with the page numbering added by Petitioner to Exhibit 1011 prior to filing.

On the current record, we determine that Petitioner has made a sufficient showing that Zeng discloses or suggests clauses 7E and 7F.

b. The Motivation to Combine Sevy and Zeng

After presenting the discussion as to why the combination of Sevy and Zeng satisfies clauses 7E and 7F (summarized in the prior section), Petitioner discusses why one of ordinary skill in the art would have combined the two references as generally shown in the composite image above. *See* Pet. 41–43 (citing White Decl. ¶¶ 206–214). Specifically, Petitioner states that one of ordinary skill in the art would have been “motivated to combine Zeng with Sevy to improve atomization (*e.g.*, form uniform aerosolized particles) and to dampen sound waves, thereby enhancing user experience.” Pet. 41; White Decl. ¶ 210. Petitioner also discusses why one of ordinary skill in the art would have implemented the combination without undue experimentation. *See* Pet. 41; White Decl. ¶ 212. According to Petitioner, one of ordinary skill in the art would have been motivated “to combine a silencer assembly as taught by Zeng with the atomizer 16 of Sevy by replacing Sevy’s separator plate 98 and passage 126 with Zeng’s noise reduction head 20 and inner cover 30” as shown in the composite image above. Pet. 41–42; White Decl. ¶ 213. Petitioner also discusses why the similar size and functionality between Zeng’s silencer assembly and Sevy’s structures supports that this is a “simple substitution of one known element for another to achieve the same desired effect of improved atomization and noise reduction.” Pet. 42–43; White Decl. ¶ 214.

Patent Owner presents two arguments challenging the reasons to combine Sevy and Zeng. *See* Prelim. Resp. 13–14, 15–17. First, Patent

Owner asserts that the reasoning is “speculative and unsupported” because “Sevy acknowledges no need for further noise attenuation.” *Id.* at 13.

Although a final conclusion of obviousness must be supported by findings and analysis establishing a reason to combine or modify the known elements as proposed, the analysis “need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

Patent Owner also argues that Petitioner “fails to explain how Zeng’s noise reduction head 20 and inner cover 30, designed for a different atomizer configuration, could be integrated into Sevy’s system without changing the principles of Sevy’s operation.” Prelim. Resp. 13–14; *see also id.* at 16 (arguing that “Zeng’s components are not mere drop-in replacements”). Although the relied-upon structures from Zeng are, of course, disclosed in that reference as part of *another* atomizer, “[t]he test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference.” *In re Keller*, 642 F.2d 413, 425 (CCPA 1981). “Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art.” *Id.* As to the alleged change in the principle of operation, Patent Owner has not adequately explained why Sevy’s principle of operation *would* change with the proposed combination, which replaces Sevy’s alleged “silencer assembly” with similar teachings of Zeng.

As the second argument addressing the reasons to combine, Patent Owner contends that “Petitioner’s *KSR*-based motivation to combine is

unpersuasive.” Prelim. Resp. 16 (citing Pet. 43 (“simple substitution”)). According to Patent Owner, although “KSR allows for some flexibility, it does not relieve Petitioner of its obligation to show that the combination would have produced the claimed invention in a predictable manner.” *Id.*

This argument does not identify a deficiency as to motivation to combine because Patent Owner contends that Petitioner’s discussion is “unpersuasive” and concludes that Petitioner did not meet its “obligation” without explaining *why*.

At this preliminary stage and in view of our decision to institute based on other grounds, we reach no conclusion as to whether Petitioner has made a sufficient showing that one of ordinary skill in the art would have combined Sevy and Zeng as proposed.

c. Conclusion for Claim 7

Because the Petition shows a reasonable likelihood that Petitioner would prevail with respect to at least one of the challenged claims based on at least one of the asserted grounds (*see* §§ II.C.2.c; II.E.2.d; II.G.2.b), we include claim 7 in the context of this asserted ground in the instituted *inter partes* review. *See SAS*, 584 U.S. at 362–63, 369–70; 37 C.F.R. § 42.108(a).

3. Claims 8, 9, and 11

For dependent claims 8, 9, and 11 (which depend from claim 7), Petitioner contends that the proposed combination of Sevy and Zeng satisfies each limitation. Pet. 43. Patent Owner does not present any arguments specifically addressing claims 8, 9, and 11 in the context of this asserted ground. *See* Prelim. Resp. 11–17. We include claims 8, 9, and 11 in the context of this asserted ground in the instituted *inter partes* review. *See SAS*, 584 U.S. at 362–63, 369–70; 37 C.F.R. § 42.108(a).

E. Asserted Obviousness of Claims 7–9 and 11 Based on Goubet

Petitioner asserts that claims 7–9 and 11 of the challenged patent would have been obvious based on Goubet. Pet. 3–4, 43–63. Patent Owner provides arguments addressing this asserted ground. Prelim. Resp. 17–21. We first summarize aspects of the relied-upon prior art.

1. Overview of Goubet

Goubet discloses “an essential oil diffuser.” Ex. 1016, 1:1.

Figure 1 of Goubet is reproduced below:

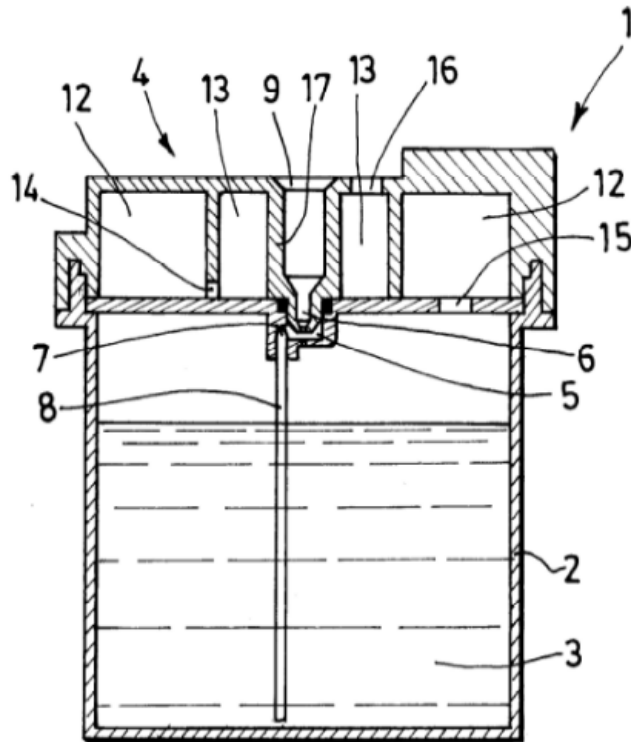


FIG.1

Figure 1 is “a cross-sectional view of a diffuser.” Ex. 1016, 3:18. Depicted oil diffuser 1 includes oil reservoir 2 (with oil 3), diffuser head 4, and diffusion chamber 5 (within which oil droplets are produced). *See id.* at

3:24–26, 3:30–31. Diffuser head 4 includes outer enclosure 12 and inner enclosure 13, “communicating with each other via a passage 14, said two enclosures and said passage forming at least one baffle.” *Id.* at 4:3–6.

“[O]uter chamber 12 communicates with the inside of the reservoir 2 via a droplet flow inlet 15” and “inner chamber 13 comprises an outlet 16 for the microdroplets to the ambient air.” *Id.* at 4:7–12.

Figures 2 and 3 are reproduced below:

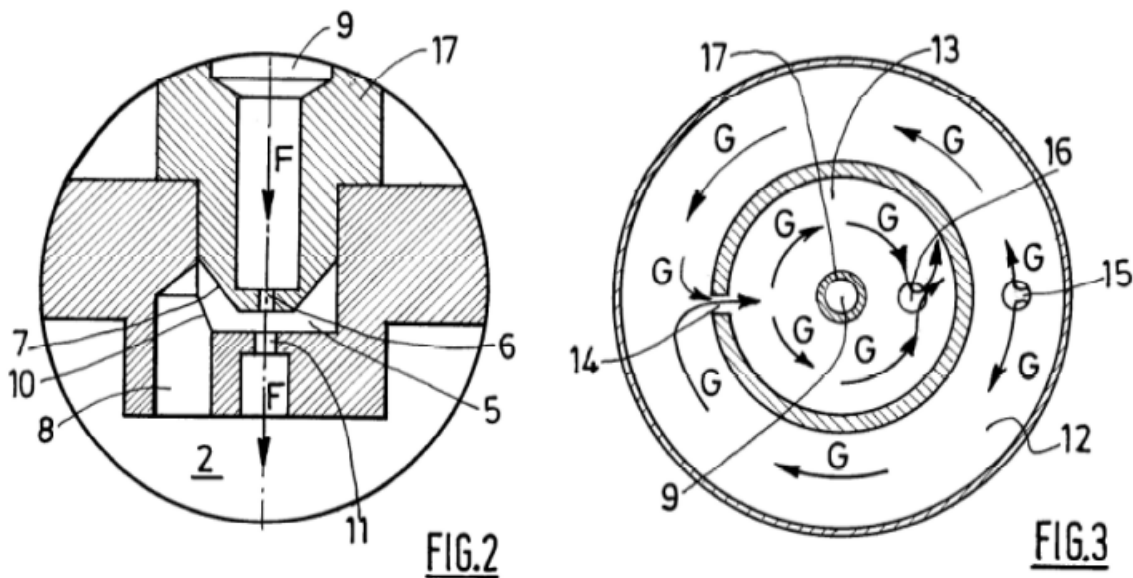


Figure 2 depicts a partial view of a diffuser head and Figure 3 is a simplified diagram showing the path of the droplets in the concentric chambers of the diffuser. *See Ex. 1016, 3:19–23.* As shown in Figure 2, diffusion chamber 5 includes compressed air inlet 6, venturi cone 7, oil inlet 10, which expels oil from dip tube 10 into chamber 5. *See id.* at 3:31–4:2. In operation, compressed air travels from inlet air channel 9 through air inlet 6 into diffusion chamber 5, in which “[a]ir and essential oil and mixed” and “a flow of oil droplets is created.” *Id.* at 4:15–22. The flow of oil droplets then travels through outlet 11, inside reservoir 2, towards inlet 15, and into outer enclosure 12. *Id.* at 4:23–28. The droplets then follow the

path indicated by arrows G in Figure 3, through passage 14, entering inner enclosure 13 before exiting outlet 16 to the ambient air. *Id.* at 4:28–5:7.

2. *Independent Claim 7*

For independent claim 7, Petitioner contends that Goubet discloses or suggests each limitation. Pet. 43–61. To support its arguments, Petitioner identifies certain passages in the cited references and explains the significance of each passage with respect to the corresponding claim limitation. *Id.* Petitioner also articulates, for an alternative position, reasons to modify aspects of Goubet. Pet. 60–61. Patent Owner (1) argues that Goubet lacks clauses 7C and 7D, (2) argues that Goubet lacks clauses 7E and 7F, and (3) challenges the articulated reasons to modify Goubet. *See* Prelim. Resp. 17–21.

We have reviewed Petitioner’s contentions with respect to claim 7, and for the reasons below, we determine that the Petition shows a reasonable likelihood that Petitioner would prevail in demonstrating that claim 7 would have been obvious based on Goubet. We address in turn each of Patent Owner’s arguments.

a. Clauses 7C and 7D

Clause 7C recites “a diffusion assembly disposed in an operative engagement with said diffusion unit” and clause 7D recites “wherein said diffusion assembly comprises an atomizer assembly.” Ex. 1001, 9:33–35. Petitioner provides the following annotated versions of figures of Goubet to explain its position as to clauses 7C and 7D:

identifying a “Diffusion assembly” and (2) a text box and orange shading identifying an “Atomizer assembly.” Pet. 53.

Patent Owner contends that Goubet’s “vaporization means and baffles serve a fundamentally different purpose than the integrated assemblies” of the challenged patent. Prelim. Resp. 18. Specifically, Patent Owner argues that the

claimed invention requires an atomizer assembly integrated into a diffusion chamber to generate a properly conditioned fluid dispersion prior to discharge—as referenced in the [challenged p]atent, namely, Col. 9, Lines 30–33 and 60–64—whereas Goubet relies on a confined tortuous path to achieve some degree of droplet size reduction and dispersion.

Prelim. Resp. 18.

This argument does not identify a deficiency in Petitioner’s position. As an initial matter (and as discussed above), Patent Owner does not adequately explain how *independent claim 7* requires creation of the “fluid dispersion” in a “diffusion chamber,” when that requirement is not recited until *dependent claim 11* (cited by Patent in support of an argument, which is ostensibly focused on claim 7). Compare Prelim. Resp. 17–21 (presenting this argument addressing claim 7), with *id.* at 18 (citing claim 11 at Ex. 1001, 9:60–64 in support of this argument); see *Liebel-Flarsheim*, 358 F.3d at 910. Moreover, Patent Owner does not adequately explain why independent claim 7 requires the functions or purposes argued as distinguishing. See *In re Self*, 671 F.2d at 1348.

On the current record, we determine that Petitioner has made a sufficient showing that Goubet discloses or suggests clauses 7C and 7D.

b. Clauses 7E and 7F

Clause 7E recites “a silencer assembly having a silencer inlet, a silencer outlet, and a baffle” and clause 7F recites “wherein said baffle partially restricts movement of the fluid dispersion through said silencer chamber from said silencer inlet to said silencer outlet, thereby dampening sound waves generated during operation of said fluid dispersion assembly.” Ex. 1001, 9:36–42. Petitioner provides the following annotated versions of figures of Goubet to explain its position as to clauses 7E and 7F:

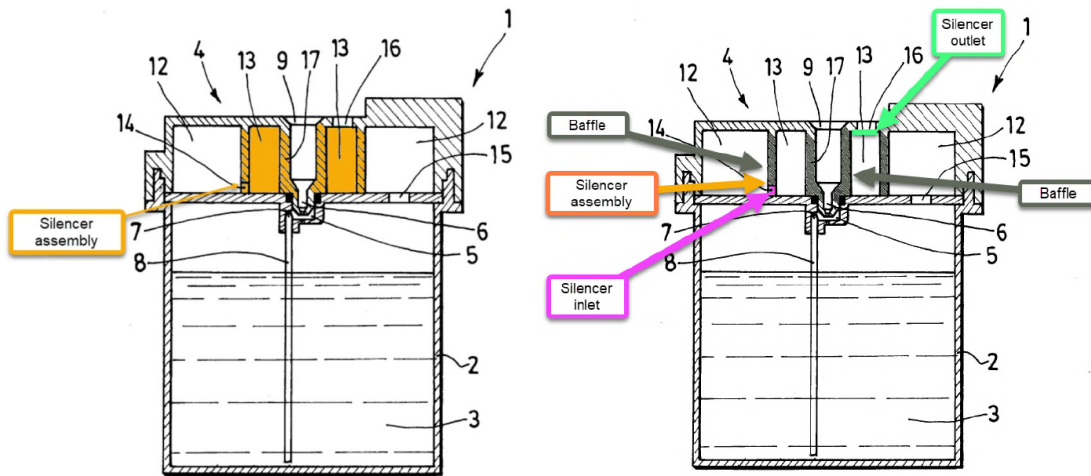


FIG.1

FIG.1

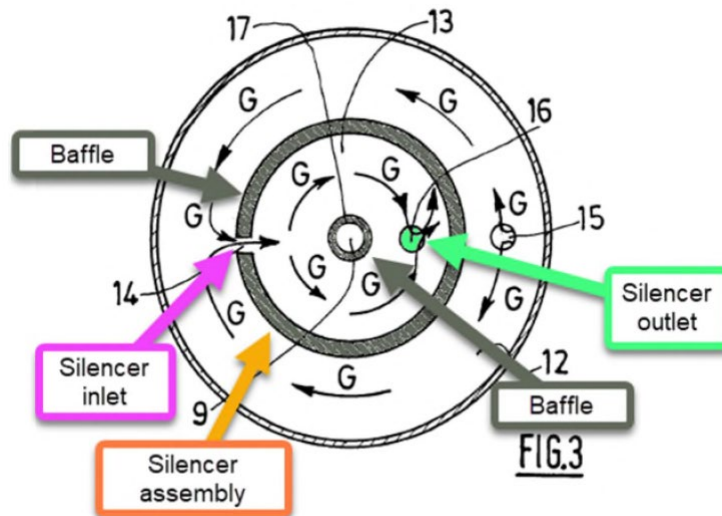


FIG.3

Pet. 56–57; *see also* Pet. 55–61 (citing White Decl. ¶¶ 254–280) (entire discussion). In the annotated version of Figure 1 of Goubet at left above, Petitioner added a text box and orange shading identifying a “Silencer assembly.” Pet. 56. In the annotated version of Figure 1 at right above and in the annotated version of Figure 3 above, Petitioner added (1) a text box identifying a “Silencer assembly,” (2) a text box identifying a “Silencer inlet,” (3) a text box and gray shading identifying a “Baffle,” and (4) a text box and teal shading identifying a “Silencer outlet.” Pet. 57.

As to the “dampening sound waves” limitation in clause 7F, Petitioner states (1) that “the surfaces of the walls facing the inner enclosure 13 meet the limitation of a ‘baffle’ as they cause ‘many shocks’ and thus disrupt the flow of diffusion by breaking down the droplets into microdroplets” and (2) that one of ordinary skill in the art would have appreciated “that a structure that disrupts fluid flow, such as a baffle, would also dampen or limit sound during operation of the device.” Pet. 58 (citing Ex. 1016, 4:31–5:6; White Decl. ¶¶ 254–264); *see also* Pet. 59 (referring to the discussion of clause 7E as to the “dampening sound waves” limitation).

Patent Owner argues that “Petitioner’s assertion that Goubet’s baffles inherently dampen sound in a manner similar to the [challenged p]atent’s claims is unsupported” and that Goubet has “no indication of any dedicated silencer assembly or purpose.” Prelim. Resp. 19–20.

On the current record, this argument does not identify a deficiency in Petitioner’s position as to the “dampening sound waves” limitation. Petitioner provides a thorough discussion—supported by the testimony of Dr. White—as to why one of ordinary skill in the art would have understood that the identified “baffle” in Goubet would disrupt fluid flow and thus

necessarily dampen sound waves. Pet. 58 (citing Ex. 1016, 4:31–5:6; White Decl. ¶¶ 254–264; Ex. 1001 6:1–8, 7:1–11, 7:64–8:2). Although Patent Owner is correct that Goubet does not expressly refer to the identified structures as a “silencer assembly” (Prelim. Resp. 20), the prior art need not expressly disclose such functional aspects.

Further supporting this inherency position, and as noted by Petitioner, Goubet discloses that the disclosed “reduction in droplet size enables a non-harsh, highly atomized oil mist or vapour to be *silently diffused*.” Ex. 1016, 5:15–16 (emphasis added), *cited at* Pet. 55. Patent Owner asserts that “Goubet does not disclose or even suggest that its baffles dampen sound; it states only that the atomized mist is diffused ‘silently’ in the sense of being gentle and non-harsh in the quality of dispersion.” Prelim. Resp. 20 (citing Ex. 1016 at 6).

The current record does not support Patent Owner’s understanding of the word “silently” in Goubet. As an initial matter, Patent Owner’s statement is mere attorney argument, with no evidentiary support. *See Elbit Sys. of Am.*, 881 F.3d at 1359 (“[A]ttorney argument is not evidence’ and cannot rebut other admitted evidence.”). Moreover, other disclosures in Goubet (highlighted by Dr. White) describe the diffusion as *both* “gentle” *and* “particularly quiet.” Ex. 1016, 2:6–8, *discussed at* White Decl. ¶¶ 231, 257.

Although the evidence summarized above supports Petitioner’s preliminary showing as to the “dampening sound waves” limitation, as highlighted in the Petition, aspects of the challenged patent *further* support Petitioner’s inherency position by indicating that, in the relevant context, structure that disrupts the flow of a “fluid dispersion” causes dampening of

sound waves. *See* Ex. 1001, 6:1–8, 7:64–8:2, *cited at* Pet. 58 (citing the same as “teaching that sound dampening is a byproduct of disrupted fluid flow”).

On the current record, we determine that Petitioner has made a sufficient showing that Sevy discloses or suggests clauses 7E and 7F, including the “dampening sound waves” limitation.

c. The Reasons to Modify Goubet

As part of the discussion of clause 7F, Petitioner proposes an alternative position: if Goubet did not disclose or suggest the “fluid dispersion” limitation, one of ordinary skill in the art would have modified Goubet “to include additional enclosures to further decrease the diameter of the microdroplets, which would result in greater uniformity in the diameters of the microdroplets that eventually are discharged into the surrounding airspace.” Pet. 60–61 (citing White Decl. ¶¶ 277–280).

Patent Owner contends that Petitioner’s reasoning for this alternative position is “*post hoc* rationalization.” *See* Prelim. Resp. 20. According to Patent Owner, “Goubet provides no teaching, suggestion, or motivation to treat its baffles as a silencer assembly, nor does it suggest arranging them in the claimed configuration.” *Id.* at 21.

This argument does not identify a deficiency in Petitioner’s alternative position. Contrary to Patent Owner’s argument, an express teaching, suggestion, or motivation in the prior art is not a requirement for an obviousness determination. *See KSR Int’l*, 550 U.S. at 418–19. Moreover, Petitioner’s proposed modification appears to address only the “fluid dispersion” limitation, not the “dampening sound waves” limitation.

On the current record, we determine that Petitioner has made a sufficient showing that a person of ordinary skill in the art would have had reason to modify Goubet (in the alternative) as proposed and that the articulated reasoning is supported by rational underpinning.

d. Conclusion for Claim 7

Patent Owner does not offer any arguments specifically addressing the remaining limitations of claim 7. *See* Prelim. Resp. 17–21. We have reviewed Petitioner’s contentions with respect to the remaining limitations of claim 7, and we determine that the Petition provides a sufficient showing, at this stage of the proceeding, that Goubet, when modified as proposed (in the alternative) satisfies each limitation and that one of ordinary skill in the art would have had reason to modify Goubet as proposed.

For the reasons above, we determine, based on the current record, that the Petition shows a reasonable likelihood that Petitioner would prevail in demonstrating that claim 7 would have been obvious based on Goubet.

3. Claims 8, 9, and 11

For dependent claims 8, 9, and 11 (all of which depend from claim 7), Petitioner contends that Goubet discloses or suggests each limitation. Pet. 61–63. Patent Owner does not present any arguments specifically addressing claims 8, 9, and 11 in the context of this asserted ground. *See* Prelim. Resp. 17–21. We include claims 8, 9, and 11 in the context of this asserted ground in the instituted *inter partes* review. *See SAS*, 584 U.S. at 362–63, 369–70; 37 C.F.R. § 42.108(a).

F. Asserted Obviousness of Claims 7–9 and 11 Based on Goubet and Kaiser

Petitioner asserts that claims 7–9 and 11 of the challenged patent would have been obvious based on Goubet and Kaiser. Pet. 3–4, 63–64.

Patent Owner provides arguments addressing this asserted ground. Prelim. Resp. 21–24. We first summarize aspects of the relied-upon prior art.

1. Overview of Kaiser

In this asserted ground, Petitioner relies on Kaiser, in addition to Goubet (summarized above (*see* § II.E.1)). Kaiser generally relates to combustor design for power generation. *See* Ex. 1014 at 42. Kaiser discloses that “[c]ritical to uniform evaporation and burning is a good control of the size distribution of the resulting aerosol.” *Id.* at 43.

2. Independent Claim 7

For independent claim 7, Petitioner contends that the proposed combination of Goubet and Kaiser discloses each limitation. Pet. 63–64. Patent Owner challenges the articulated reasons to combine Goubet and Kaiser as proposed. *See* Prelim. Resp. 21–24.

a. The Motivation to Combine Goubet and Kaiser

Addressing the “fluid dispersion” limitation in clause 7F, Petitioner states that “Goubet does not explicitly disclose that the droplets are substantially uniform.” Pet. 63; *see also* Ex. 1018, Exhibit A (construing “fluid dispersion”). Because of this, for this ground, Petitioner “also relies on Kaiser which describes that it was well known in the field at the time of the invention to produce uniform droplets to improve uniform evaporation rates.” Pet. 63–64 (citing Ex. 1014 at 43 (“Critical to uniform evaporation and burning is a good control of the size distribution of the resulting aerosol”). According to Petitioner, “if Goubet does not teach a ‘fluid dispersion,’” one of ordinary skill in the art “would have been motivated to modify Goubet to include additional enclosures that result in fluid dispersion, as described” in the ground based on Goubet alone. Pet. 64.

Patent Owner argues that one of ordinary skill in the art “would not have been motivated to combine Goubet and Kaiser because the references are directed to fundamentally different problems in distinct technical domains—namely, scent dispersion in consumer enclosures versus combustion dynamics in mesoscale power generation.” Prelim. Resp. 23–24; *see also id.* at 21–24 (entire argument).

At this stage of the proceeding, the record on the analogous art issue is incomplete. Petitioner seems to take the position that Kaiser is in the same “field” (Pet. 63), but Petitioner does not fully address the issue of analogous art. Although Petitioner was not required to anticipate this argument with its initial filing (*see Sanofi-Aventis Deutschland GmbH v. Mylan Pharma., Inc.*, 66 F.4th 1373, 1379 (Fed. Cir. 2023)), Petitioner may wish to address this issue as appropriate in future briefing if Patent Owner raises the issue in its Patent Owner Response. We will consider the full record on this issue, if necessary, as part of our analysis in any final written decision.

On the current record and in view of our decision to institute based on other grounds, we reach no conclusion as to whether Petitioner has made a sufficient showing that one of ordinary skill in the art would have combined Goubet and Kaiser as proposed.

b. Conclusion for Claim 7

Because the Petition shows a reasonable likelihood that Petitioner would prevail with respect to at least one of the challenged claims based on at least one of the asserted grounds (*see* §§ II.C.2.c; II.E.2.d; II.G.2.b), we include claim 7 in the context of this asserted ground in the instituted *inter partes* review. *See SAS*, 584 U.S. at 362–63, 369–70; 37 C.F.R. § 42.108(a).

3. *Claims 8, 9, and 11*

For dependent claims 8, 9, and 11 (all of which depend from claim 7), Petitioner contends that the proposed combination of Goubet and Kaiser satisfies each limitation. Pet. 63–64. Patent Owner does not present any arguments specifically addressing claims 8, 9, and 11 in the context of this asserted ground. See Prelim. Resp. 21–24. We include claims 8, 9, and 11 in the context of this asserted ground in the instituted *inter partes* review. See *SAS*, 584 U.S. at 362–63, 369–70; 37 C.F.R. § 42.108(a).

G. Asserted Obviousness of Claims 7–9 and 11 Based on Gao

Petitioner asserts that claims 7–9 and 11 of the challenged patent would have been obvious based on Gao. Pet. 3–4, 64–80. Patent Owner provides arguments addressing this asserted ground. Prelim. Resp. 25–33. We first summarize aspects of the relied-upon prior art.

1. *Overview of Gao*

Gao discloses “an atomizer used for atomizing essence or essential oil.” Ex. 1013 at 5 (¶ 1).

Figures 1 and 2 of Gao are reproduced below:

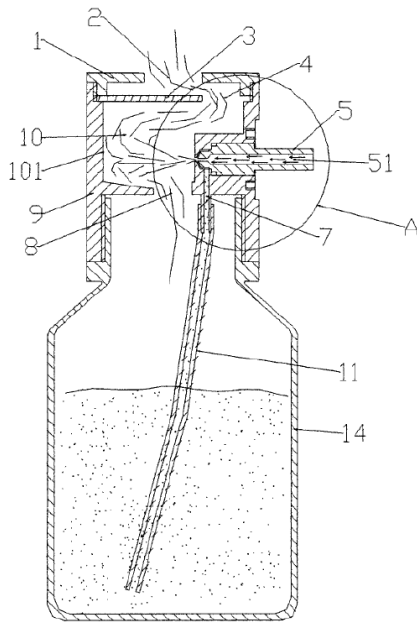


FIG. 1

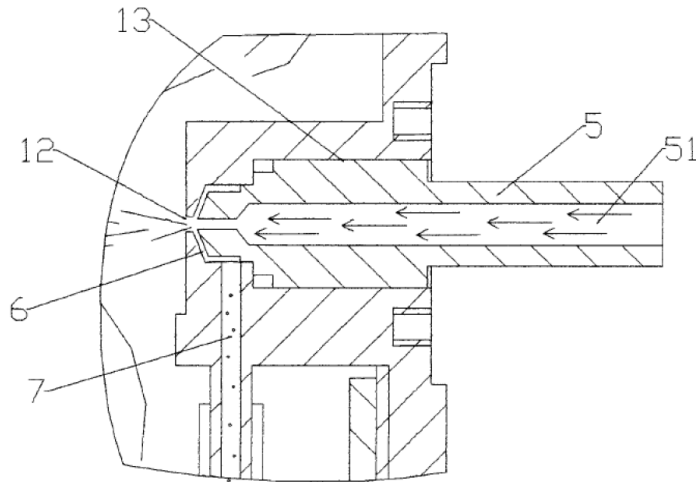


FIG. 2

Figure 1 depicts “the structure of an atomizer for atomizing essence or essential oil.” Ex. 1013 at 7 (¶ 16). Figure 2 depicts an enlarged schematic of “A” in Figure 1. *Id.* (¶ 17). The depicted atomizer includes liquid pipeline 7, which brings stored liquid up via hose 11 to combine with gas from gas flow nozzle 5 in atomizing cavity 6. *See id.* at 8 (¶ 19), 8–9 (¶ 25). The gas-liquid mixture is then ejected through gas flow spray hole 12 into inner wall 101, where “the liquid is atomized into micron-sized fine particles.” *Id.* at 8–9 (¶ 25). Gao discloses that “[t]he smallest particles will float in the air, and drift out through the through hole 4 and the atomizing gas outlet 2 with the rising gas flow to be converted into gas through heat exchange with the air.” *Id.* at 9 (¶ 25).

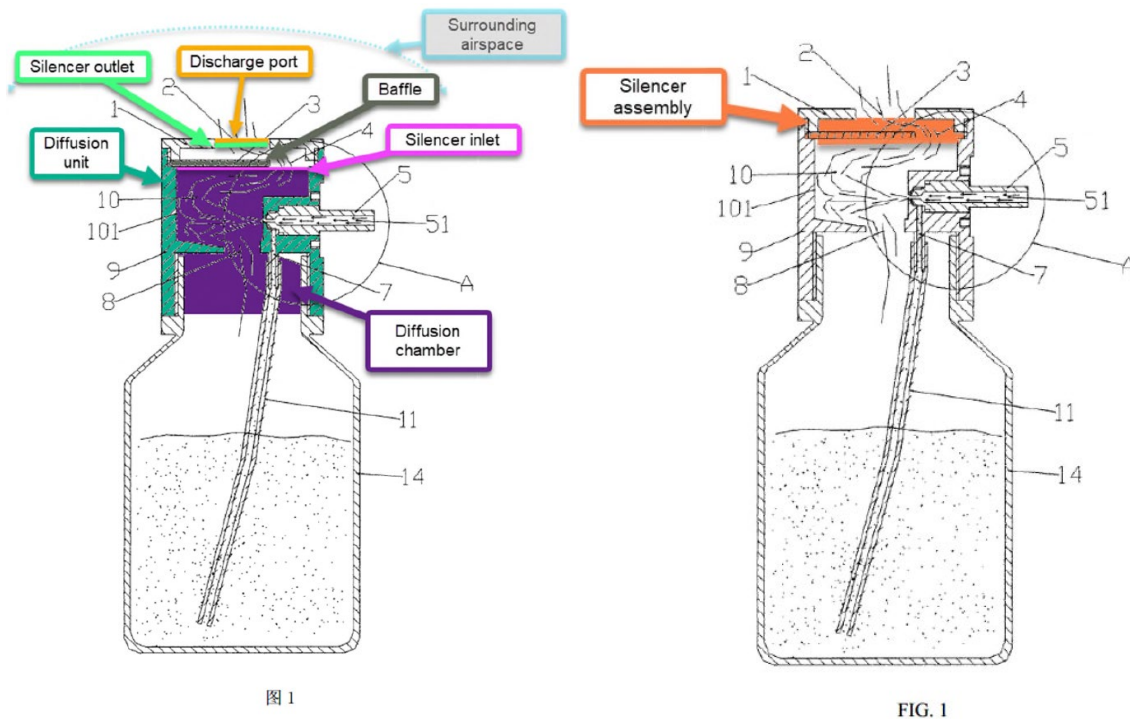
2. Independent Claim 7

For independent claim 7, Petitioner contends that Gao discloses or suggests each limitation. Pet. 64–80. To support its arguments, Petitioner

identifies certain passages in the cited references and explains the significance of each passage with respect to the corresponding claim limitation. *Id.* Patent Owner argues that Gao lacks clause 7E. Prelim. Resp. 25–32.

a. Clause 7E

Clause 7E recites “a silencer assembly having a silencer inlet, a silencer outlet, and a baffle.” Ex. 1001, 9:36–37. Petitioner identifies the recited structures, including the “baffle,” in these annotated versions of Figure 1 of Gao:



Pet. 75–76; *see also* Pet. 73–76 (citing White Decl. ¶¶ 340–350) (entire discussion). In the annotated version of Figure 1 on the left, Petitioner added (1) a text box and purple shading identifying a “Diffusion chamber,” (2) a text box and pink shading identifying a “Silencer inlet,” (3) a text box and gray shading identifying a “Baffle,” (4) a text box and yellow shading identifying a “Discharge port,” (5) a text box and green shading identifying a

“Silencer outlet,” (6) a text box and teal shading identifying a “Diffusion unit,” and (7) a text box and dotted blue line identifying a “Surrounding airspace.” Pet. 75. In the annotated version of Figure 1 on the right, Petitioner added a text box and orange shading identifying a “Silencer assembly.” Pet. 76.

Petitioner argues that, for the same reasons discussed in the context of the grounds based on Sevy alone and Goubet alone, with respect to clause 7E, one of ordinary skill in the art would have understood “that a baffle that disrupts fluid flow, like Gao’s baffle 3, would also limit sound associated therewith.” Pet. 75 (citing Ex. 1001, 6:1–8, 7:1–11, 7:64–8:2; White Decl. ¶¶ 340–350).

Patent Owner argues that Gao lacks clause 7E. *See* Prelim. Resp. 25–32. Specifically, Patent Owner argues that Petitioner reaches the “unsupported conclusion” that because one of ordinary skill in the art would have understood “that a baffle disrupts fluid flow, the baffle of Gao must **inherently** teach a silencer assembly, including a baffle, silencer inlet, and silencer outlet.” Prelim. Resp. 28. According to Patent Owner, the challenged patent “describes a specific silencer assembly (reference numeral 134) with distinct components: a silencer inlet (reference numeral 135), a baffle (reference numeral 136), and a silencer outlet (reference numeral 137), each serving separate and defined roles within the system.” *Id.* at 28–29 (citing Ex. 1001, 7:49–8:5). Patent Owner asserts that “inherency **cannot** be established by mere possibility, probability, or stretched arguments of how a baffle may result in other structures being inherently described in cited references.” *Id.* at 30.

On the current record, this argument does not identify a deficiency as to clause 7E because Patent Owner does not actually address Petitioner's position. Although Petitioner makes an inherency argument about whether the "baffle" would "limit sound" (*see* Pet. 75), contrary to Patent Owner's argument, Petitioner *does not* argue that the presence of a "baffle" necessarily requires the presence of a "silencer inlet," a "silencer outlet," and a "silencer assembly" as recited in clause 7E. *Cf.* Prelim. Resp. 28–30. Instead, as shown above, Petitioner identifies those features as disclosed in Figure 1 of Gao. That the features relied on are not expressly discussed or given reference numerals in Gao (even if they are in the challenged patent) does not undermine Petitioner's showing at this stage of the proceeding. *See In re Aslanian*, 590 F.2d 911, 914 (CCPA 1979) ("[A] drawing in a utility patent can be cited against the claims of a utility patent application even though the feature shown in the drawing was unintended or unexplained in the specification of the reference patent."); *In re Meng*, 492 F.2d 843, 847 (CCPA 1974) ("[A] drawing is available as a reference for all that it teaches a person of ordinary skill in the art.").

On the current record, we determine that Petitioner has made a sufficient showing that Gao discloses clause 7E.

b. Conclusion for Claim 7

Patent Owner does not offer any arguments specifically addressing the remaining limitations of claim 7. *See* Prelim. Resp. 25–33. We have reviewed these aspects of Petitioner's contentions, and we determine that the Petition provides a sufficient showing, at this stage of the proceeding, that Gao satisfies each limitation.

For the reasons above, we determine, based on the current record, that the Petition shows a reasonable likelihood that Petitioner would prevail in demonstrating that claim 7 would have been obvious based on Gao.

3. Claims 8, 9, and 11

For dependent claims 8, 9, and 11 (all of which depend from claim 7), Petitioner contends that Gao discloses or suggests each limitation. Pet. 78–80. Patent Owner does not present any arguments specifically addressing claims 8, 9, and 11 in the context of this asserted ground. *See* Prelim. Resp. 25–33. We include claims 8, 9, and 11 in the context of this asserted ground in the instituted *inter partes* review. *See SAS*, 584 U.S. at 362–63, 369–70; 37 C.F.R. § 42.108(a).

H. Asserted Obviousness of Claims 7–9 and 11 Based on Gao and Zeng

Petitioner asserts that claims 7–9 and 11 of the challenged patent would have been obvious based on Gao and Zeng. Pet. 3–4, 80–83. Patent Owner provides arguments addressing this asserted ground. Prelim. Resp. 33–37. In this asserted ground, Petitioner relies on Gao (summarized above (*see* § II.G.1)) and Zeng (summarized above (*see* § II.D.1)).

1. Independent Claim 7

For independent claim 7, Petitioner contends that the proposed combination of Gao and Zeng discloses each limitation. Pet. 80–83. Patent Owner argues that the combination does not satisfy the requirements of clause 7E. *See* Prelim. Resp. 33–37.

a. Clause 7E

Clause 7E recites “a silencer assembly having a silencer inlet, a silencer outlet, and a baffle.” Ex. 1001, 9:36–37. For this asserted ground, Petitioner first relies on Zeng for the structures in clause 7E in the same

manner discussed in the context of the ground based on Sevy and Zeng. *See* Pet. 82–83 (discussing Modification 1); *see supra* § II.D.2.a. Second, Petitioner argues that one of ordinary skill in the art would have “been motivated to modify Gao’s existing orifice baffle into a dome shape orifice baffle as taught by Zeng to produce an improved noise reducing effect.” Pet. 83 (Modification 2).

Patent Owner agrees that a motivation to combine the teachings of Gao and Zeng exists, but Patent Owner again argued that “Zeng does not disclose or suggest the specific structural configuration set forth in clause [E] of claim 7.” Prelim. Resp. 34.

For the same reasons discussed in the context of the ground based on Sevy and Zeng, we determine that Petitioner has made a sufficient showing that Zeng discloses or suggests clause 7E. *See* § II.D.2.a.

b. Conclusion for Claim 7

Because the Petition shows a reasonable likelihood that Petitioner would prevail with respect to at least one of the challenged claims based on at least one of the asserted grounds (*see* §§ II.C.2.c; II.E.2.d; II.G.2.b), we include claim 7 in the context of this asserted ground in the instituted *inter partes* review. *See SAS*, 584 U.S. at 362–63, 369–70; 37 C.F.R. § 42.108(a).

2. Claims 8, 9, and 11

For dependent claims 8, 9, and 11 (all of which depend from claim 7), Petitioner contends that the proposed combination of Gao and Zeng satisfies each limitation. Pet. 83. Patent Owner does not present any arguments specifically addressing claims 8, 9, and 11 in the context of this asserted ground. *See* Prelim. Resp. 33–37. We include claims 8, 9, and 11 in the

context of this asserted ground in the instituted *inter partes* review. *See SAS*, 584 U.S. at 362–63, 369–70; 37 C.F.R. § 42.108(a).

III. CONCLUSION

For the reasons above, we determine that the Petition shows a reasonable likelihood that Petitioner would prevail with respect to at least one of challenged claims 7–9 and 11 of the challenged patent. At this stage of the proceeding, no final determination has yet been made with regard to the patentability of any of the challenged claims or any underlying factual or legal issues, including the construction of claim terms. The final determination will be based on the record as developed during the *inter partes* review.

IV. ORDER

Accordingly, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), *inter partes* review is hereby instituted as to claims 7–9 and 11 of the challenged patent on all asserted grounds and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, *inter partes* review shall commence on the entry date of this Decision, with notice hereby given of the institution of a trial.

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