

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AROMA360, LLC,
Petitioner,
v.
AIR ESSSENTIALS, INC.,
Patent Owner.

Case IPR2025-00706
Patent 10,583,449

**PETITIONER'S SUR-REPLY TO PATENT OWNER'S REPLY
IN SUPPORT OF PATENT OWNER'S REVISED CONTINGENT
MOTION TO AMEND**

I. INTRODUCTION

Claim 20 still lacks objective boundaries for “minimize contact,” and Patent Owner attacks the references individually rather than the routine sealing and drainage combination Petitioner advanced. Claim 21 fares no better. Patent Owner relies on selected embodiments and unclaimed structures for written-description support, definiteness, and priority, while importing different unclaimed requirements to avoid the prior art. Patent Owner’s Gao-2 response repeats the same error because, under Patent Owner’s reading, the claimed opening from the mixing chamber into the diffusion chamber is supported only by Figure 6, if at all, while Gao-2 discloses the same functional atomizer path and distinct upstream spray outlet/final discharge structure.

II. THE SUBSTITUTE CLAIMS STILL FAIL § 112

A. *Sonix* Does Not Render Claim 20 Definite

Patent Owner relies on *Sonix*, but that case confirms the governing inquiry, namely whether the intrinsic record supplies objective guidance for applying a term of degree. *Sonix Tech. Co. v. Publ’ns Int’l, Ltd.*, 844 F.3d 1370, 1377-80 (Fed. Cir. 2017). *Sonix* involved “visually negligible,” and the specification supplied concrete design guidance and examples, including requirements tied to micro-unit size, pitch, brightness, homogeneity, and matrix-cell examples. *Id.* at 1379-80. Claim 20 has no comparable design guidance in the specification. Claim 20 requires the drip tube to “minimize contact” between the sealing washer and operative fluid, but neither the

claim nor the specification identifies a threshold, baseline, permitted wetted area, contact duration, test method, or comparison example for determining when contact has been minimized. Pet. Opp. at 1-3; Ex. 1052 ¶¶ 38-40.

Patent Owner's cited passages confirm the problem. The specification states that the drip tube "essentially prevent[s]" operative fluid from contacting the sealing washer and channels accumulated fluid back into the container "without contacting the sealing washer." PO Reply at 3-4; Ex. 1001, 4:28-43, 9:29-44. "Without contacting" describes a no-contact endpoint, while "essentially preventing" allows some undefined deviation from that endpoint. Claim 20 uses neither phrase and instead recites "minimize contact," without explaining whether that means no contact, incidental contact, any reduction from an unstated baseline, or a reduction approaching Patent Owner's "essentially preventing" standard. The written description therefore does not establish an objective boundary for this term of degree. *Sonix*, 844 F.3d at 1378-80; *Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1371-74 (Fed. Cir. 2014).

Patent Owner overreads *Genuine Enabling Tech. LLC v. Nintendo Co.*, which held that expert testimony cannot override the intrinsic record to support an inconsistent claim construction. PO Reply at 4 (citing 29 F.4th 1365, 1373 (Fed. Cir. 2022)). Here, the specification's disclosures of "essentially prevent[s]" and "without contacting," do not supply objective boundaries for "minimize contact." Ex. 1001,

4:28-43, 9:29-44; Ex. 1052 ¶¶ 38-40. Dr. White’s testimony addresses that indefiniteness problem without contradicting the intrinsic record. Ex. 1052 ¶¶38-40.

B. Claim 21 Still Lacks Written-Description Support

Patent Owner argues, first, that the atomizer air inlet channel “defin[es]” the compressed-air flow path “*through*” the atomizer assembly because the channel’s circumference and orientation allegedly provide the path’s initial boundary and direction, and, second, that the lateral and transverse exhaust limitations are supported because fluid dispersion allegedly takes a 90-degree turn through suppressor discharge port 234. PO Reply at 4-6. Neither argument supplies the claimed arrangement.

Patent Owner’s dictionary definition confirms the defect in the compressed-air-flow-path term. Patent Owner says “define” means “to fix or mark the limits of.” PO Reply at 4-5. But claim 21 defines the “atomizer assembly” as a multi-component structure including the atomizer air inlet channel, fluid inlet, mixing chamber, and atomizer exhaust aperture. PO Revised MTA, Claim App. 19-20. Thus, the compressed-air flow path “through said atomizer assembly” must extend through that multi-component assembly, not merely through the inlet channel. Patent Owner identifies no disclosure showing that the inlet channel fixes or marks the path after air leaves the inlet channel and travels through the rest of the atomizer assembly. Ex. 1052 ¶ 41.

Patent Owner's reliance on circumference, orientation, and a supposedly "linear" path does not cure that gap. PO Reply at 4-5. Those arguments address only the inlet channel's own geometry and, in any event, import unclaimed restrictions into claim 21. The issue is not whether channel 222 helps establish the path's initial boundary or direction. It is whether the cited disclosure shows possession of a claim in which the inlet channel defines the compressed-air flow path *through* the atomizer assembly as recited in Claim 21. It does not. Ex. 1052 ¶41.

Patent Owner's exhaust-aperture argument identifies the wrong opening. In Figures 1-2, atomizer exhaust 228 transfers dispersion from mixing chamber 226 into suppression chamber 23. Ex. 1001, 6:5-30 & Figs. 1-2. The separate suppressor discharge port 234 then transfers dispersion from chamber 232 into diffusion chamber 112. *Id.* Claim 21 requires the atomizer exhaust aperture itself to open from the mixing chamber into the diffusion chamber. PO Revised Mot. to Amend, Claim App. 20; Ex. 1052 ¶¶ 54-56. Patent Owner did not cite suppressor discharge port 234 in its support table, and, even if considered, port 234 is a different opening from a different chamber than the claimed atomizer exhaust aperture.

Patent Owner's assertion that it need not cite a single passage for all added limitations misses the point. Petitioner does not demand in haec verba disclosure or a single passage disclosing the entire claim. The problem is that the disclosure must convey possession of the claimed relationships in one arrangement or link the relied-on embodiments. Pet. Opp. at 3-6; Ex. 1052 ¶¶ 53-57. Figures 1-3 do not show the

atomizer exhaust aperture opening into the diffusion chamber, and Figure 5, even if considered,¹ does not supply Patent Owner’s lateral/transverse relationship. Ex. 1001, Figs. 1-3, 5-6. Patent Owner cannot establish possession by relying on one embodiment for an opening into the diffusion chamber and another incompatible embodiment for the alleged lateral or transverse geometry. *See Parus Holdings, Inc. v. Google LLC*, 70 F.4th 1365, 1372-75 (Fed. Cir. 2023) (affirming that the relied-on embodiments did not disclose the claimed combination as a whole).

C. Claim 21 Remains Indefinite

Claim 21 also remains indefinite since the claim fails to identify which three-dimensional openings are “lateral,” which exhaust paths are “transverse,” and which direction of fluid movement supplies the comparison. *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 910 (2014); PO Rev. MTA, Claim App. 20. Neither the claim nor the specification identifies the controlling plane or axis, or whether “enters” means initial movement through the fluid inlet or subsequent movement in the mixing chamber. Ex. 1052 ¶¶ 43-45. Patent Owner’s 90-degree response again relies on discharge port 234, not atomizer exhaust aperture 228. PO Reply at 5-6; Ex. 1001, 6:5-30. Substituting a different opening for the claimed aperture confirms the notice problem rather than curing it.

Patent Owner’s passing assertion that Dr. White’s declaration “must be disregarded” also fails. PO Reply at 6. Patent Owner identifies no Dr. White opinion

¹ Patent Owner did not cite Figure 5 for support in its Revised Motion to Amend.

that contradicts the specification, and Dr. White simply explains that the intrinsic record lacks objective boundaries for the claimed “through” path and lateral/transverse limitations. Ex. 1052 ¶¶ 41, 43-45.

III. THE REPLY DOES NOT DISTINGUISH THE ASSERTED GROUNDS

Obviousness turns on what the combined teachings would have suggested to a POSITA and does not require physically incorporating one reference’s complete device into another. *In re Mouttet*, 686 F.3d 1322, 1331-33 (Fed. Cir. 2012). The Reply attacks references individually and demands exact duplication of the patent’s drawings, contrary to the combinations advanced in the Opposition. PO Reply at 6-13; Pet. Opp. at 8-25.

A. The Sevy-Based Grounds Render the Claims Obvious

1. Claim 20 is rendered obvious.

Sevy already provides the reason to add a drip tube as claimed. Sevy separates larger droplets and returns them toward reservoir 18. Ex. 1009 ¶¶ 69-70, 82-84. A passive drain would guide that existing return flow; it would not alter pump 14, nozzle 92, siphon 96, cavity 116, separator 120, wall 121, separator plate 98, or port 106, or how those structures atomize, separate, and discharge droplets. Ex. 1009 ¶¶ 75-84; Ex. 1052 ¶¶ 47-48, 74-76. Dr. Micklow’s statement that the tube is a “different fluid-management mechanism” merely identifies that an added component is needed, not a change to Sevy’s principle of operation for atomization,

separation, or discharge. PO Reply at 6-7; Board Preliminary Guidance at 7-8; *Mouttet*, 686 F.3d at 1331-32.

Patent Owner's attacks on Van Roemburg and Rosener misstate the combination because neither reference is relied on as substitutes for Sevy's reservoir interface. Sevy supplies the bottle-mounted interface and returning liquid. Ex. 1009 ¶¶ 41, 82-84. Van Roemburg confirms that O-ring sealing was conventional in essential-oil atomizers, including sealing engagement between housing components adjacent to the threaded bottle engagement. Ex. 1053, 2:25-33, 2:58-62, Fig. 2. Rosener confirms that drainage tubes were used to return non-atomized oil for reuse. Ex. 1054, Abstract, 1:37-45, 7:60-8:5, Figs. 2D-2E. Dr. White explains why a POSITA would predictably use those conventional sealing and drainage teachings at Sevy's reservoir-mounted atomizer interface to route returned liquid through a defined drain rather than across the sealing surface. Ex. 1052 ¶¶ 47-51, 76.

Patent Owner's common-sense and teaching away arguments also fail. *K/S HIMPP* and *ARRIS* rejected unsupported common-knowledge or common-sense based rejections, but confirmed that combinations supported, as here, by prior-art teachings and reasoned expert testimony are proper. *K/S HIMPP v. Hear-Wear Techs., LLC*, 751 F.3d 1362, 1365-66 (Fed. Cir. 2014); *ARRIS Solutions, Inc. v. Realtime Adaptive Streaming LLC*, IPR2019-01586, Paper 7 at 23-26 (PTAB Mar. 16, 2020); *see* Pet. Opp. at 9-11; Ex. 1052 ¶¶ 47-51. Nor does Rosener criticize, discredit, or discourage routing returned liquid through a sealed interface. PO Reply

at 8-9. Patent Owner's argument assumes bodily incorporation of Rosener's reservoir into Sevy, but Petitioner relies on Rosener for its teaching of the drainage function, not for the location of Sevy's washer or reservoir interface. Pet. Opp. at 10-11; Ex. 1052 ¶50; *Meiresonne v. Google, Inc.*, 849 F.3d 1379, 1382 (Fed. Cir. 2017); *Mouttet*, 686 F.3d at 1332-33.

2. Claim 21 is rendered obvious.

Patent Owner's claim 21 response begins with an argument about claim 20, stating that "Gao does not suggest ... to add a drip tube and washer to Sevy." PO Reply at 9-10. But claim 21 recites neither feature. PO Rev. MTA, Claim App. 19-20. The remaining argument depends on the unclaimed premise that the compressed-air path must continue through the assembly in the same direction and circumference established by the inlet channel. PO Reply at 9-12. Under the claim language and Patent Owner's proposed construction, discussed above, the inlet channel merely establishes the path's initial boundary and direction rather than the downstream boundary and direction. Ex. 1001, 5:14-50.

Sevy meets those relationships under the Petition's unchanged mapping. Channel 114 carries compressed air through orifice 118 into cavity 116; siphon 96 introduces liquid from below; the mixture exits cavity 116 through orifice 119 toward separator chamber 120; and downstream port 106 provides final discharge. Pet. at 23-30; Pet. Opp. at 11-14; Ex. 1009 ¶¶ 72, 79-82 & Fig. 9; Ex. 1052 ¶¶ 77-79. Cavity 116 lies after channel 114 and before orifice 119, and the exhaust

direction through orifice 119 is nonparallel to the initial direction of liquid entry from siphon 96. Ex. 1009 ¶¶ 80-82 & Fig. 9; Ex. 1052 ¶ 79.

Gao provides the same sequence in the alternative Sevy-Gao ground: gas-flow pipe 51 supplies atomizing cavity 6, liquid pipeline 7 supplies operative fluid to that cavity, side spray hole 12 opens from the cavity into lower part cavity 10, and atomizing gas outlet 2 is the separate final port. Pet. at 65-72; Pet. Opp. at 11-14; Ex. 1013 ¶¶ 19, 25, Figs. 1-2. Gao is not distinguishable as Patent Owner suggests because claim 21 does not require a constant-direction path so even if the flow later changes direction within Gao's downstream chamber it still reads on the claim. PO Reply at 10-11; PO Rev. MTA, Claim App. 19-20.

B. The Goubet-Based Grounds Render the Claims Obvious

Patent Owner's claim 20 response focuses on downstream droplet inlet 15, but the claim places the washer between the diffusion unit and container, not at inlet 15 or outlet 11. PO Reply at 11; PO Rev. MTA, Claim App. 18-19. Goubet attaches diffuser head 4 to reservoir 2, identifies leakage and product retention as design concerns, and directs droplets leaving diffusion chamber 5 toward the reservoir interior. Ex. 1016, 2:9-12, 3:1-9, 3:24-4:28 & Fig. 1; Ex. 1052 ¶¶ 52, 80-81. Petitioner's Opposition does not contend that Figure 1 expressly depicts the claimed washer and tube; its obviousness rationale is that a POSITA would use a conventional seal at that head/reservoir interface and route returned liquid through a passive guide rather than across the sealing surface. Pet. Opp. at 13-14; Ex. 1052 ¶¶

80-81. That refinement preserves Goubet's compressed-air supply, Venturi entrainment, mixing, and downstream droplet path. Ex. 1052 ¶ 80.

For claim 21, Goubet expressly discloses compressed air entering through channel 9 and cone 7, creating vacuum that draws oil through dip-tube end 10 into diffusion chamber 5 for mixing and discharge through outlet 11. Ex. 1016, 3:31-4:28 & Fig. 2; Pet. Opp. at 14-15. The Board preliminarily credited Dr. White's explanation that this Venturi geometry necessarily requires, or at least renders obvious, positioning the fluid-inlet opening relative to the air path so compressed air flows across the opening into the mixing region. Board Prelim. Guidance at 11-12; Ex. 1047 ¶ 41; Ex. 1052 ¶¶ 82-83. Patent Owner's assertion that Petitioner supplied "no support" overlooks that expert testimony evidence, while Dr. Micklow's different-liquid-return opinion addresses claim 20, not claim 21. PO Reply at 11-12.

As to the exhaust relationship, Petitioner relies on the Opposition's existing mapping of outlet 11 and Goubet's downstream release path despite Patent Owner unfounded arguments to the contrary. Pet. Opp. at 15; Ex. 1016, 4:23-28; Ex. 1052 ¶ 84. Patent Owner's imported requirement of a continuous, straight, constant-circumference path is not found in or consistent with the claim limitations recited in claim 21. PO Reply at 11-12; PO Rev. MTA, Claim App. 19-20.

C. Gao-2 Renders Claim 21 Obvious

Patent Owner's quoted provisional sentence at best supports the narrower proposition that compressed air flows past fluid-inlet opening 227 into mixing

chamber 226. PO Reply at 12-13; Ex. 1006, labelled page 28, lines 5-9. However, that disclosure does not identify that opening as “disposed along” a compressed-air flow path defined by the inlet channel through the atomizer assembly, which is the relationship Petitioner’s Opposition raised. Pet. Opp. at 15-17. Support for the Venturi result thus does not establish support for an atomizer exhaust aperture opening from the mixing chamber into the diffusion chamber.

Patent Owner’s priority argument also fails. Figures 1-2 route atomizer exhaust 228 into suppression chamber 232, not diffusion chamber 112, and Patent Owner now relies on suppressor discharge port 234, a different opening not cited in its support table. Ex. 1001, 6:5-30 & Figs. 1-2; Ex. 1052 ¶¶ 54-57. If the claim is read as Patent Owner now urges, the opening from the mixing chamber into the diffusion chamber limitation is supported only, if at all, by Figure 6, not by the earlier provisional figures Patent Owner cites. As the Board found in a related IPR, Gao-2 would be prior art for a claim that has support only in Figure 6, which was added into the application on November 17, 2016, which is after Gao-2 published on January 7, 2015. *See* IPR2025-00707, Paper No. 10 at 26-33 (finding Gao-2 is prior art for claim which is supported only by Figure 6); *PowerOasis, Inc. v. T-Mobile USA, Inc.*, 522 F.3d 1299, 1305-06 (Fed. Cir. 2008); Pet. Opp. at 15-17.

On the merits, Petitioner’s mapping is consistent throughout. The mixing chamber is the confined volume between the distal end of rotating core 322, including the volume defined by guide grooves 3225, and cap 323 upstream of spray

outlet 3231. Pet. Opp. at 19-21; Ex. 1052 ¶¶ 61-66. Spray outlet 3231 is the atomizer exhaust aperture. *Id.* Gao-2 states that essential oil mixes with airflow and is atomized at the outlet of liquid suction hole 3224 before discharge through spray outlet 3231. PO Reply at 13; Ex. 1042 ¶¶ [0036]-[0040], Figs. 7, 9-10; Pet. Opp. at 19-21; Ex. 1052 ¶¶ 62-65. That volume satisfies both Patent Owner’s proposed “region where the operative fluid is combined with the compressed air” and Petitioner’s proposed chamber where the two are initially mixed. Ex. 1018, 4.

The mapped diffusion chamber is the internal chamber path surrounding core 32 downstream of spray outlet 3231 and upstream of final mist outlet 351. Pet. Opp. at 17-24; Ex. 1052 ¶¶ 59-67. Thus, spray outlet 3231 and mist outlet 351 are distinct apertures at different locations in the flow path, and the existing mapping treats the exhaust through 3231 as distinct from and transverse to fluid entry through liquid suction hole 3224. Pet. Opp. at 21-22; Ex. 1052 ¶¶ 66-67. Patent Owner’s page-14 graphics identify intervening downstream structures, but those structures lie in the downstream path through which mist travels before final discharge. They do not change that spray outlet 3231 is the upstream atomizer exhaust aperture and mist outlet 351 is the separate discharge port. PO Reply at 13-14; Pet. Opp. at 17-24; Ex. 1052 ¶¶ 59-67.

IV. CONCLUSION

For the foregoing reasons, Petitioner respectfully requests that the Board deny Patent Owner’s Revised Contingent Motion to Amend.

Dated: July 23, 2026

Respectfully submitted,

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CERTIFICATE OF SERVICE UNDER 37 C.F.R. § 42.6(e)(4)

The undersigned hereby certifies that a copy of the foregoing Petitioner's
Sur-Reply to Patent Owner's Reply in Support of Patent Owner's Revised
Contingent Motion to Amend has been served on July 23, 2026, via electronic mail
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