

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AROMA360, LLC,

Petitioner,

v.

AIR ESSCENTIALS, INC.,

Patent Owner.

Case IPR 2025-00705
U.S. Patent No. 9,527,094

PATENT OWNER'S REPLY IN SUPPORT OF
PATENT OWNER'S REVISED CONTINGENT MOTION TO AMEND

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Patent Trial and Appeal Board
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P.O. Box 1450
Alexandria, VA 22313-1450

PATENT OWNER'S EXHIBIT LIST

Exhibit Number	Filing Party	Title
2001	Patent Owner	Transcript for the Deposition of Dr. Christopher White, PhD.
2002	Patent Owner	Declaration of Dr. Gerald Micklow, PhD.
2003	Patent Owner	CV and Qualifications of Dr. Gerald Micklow, PhD
2004	Patent Owner	Certified Translation of CN 20183273U (GAO)
2005	Patent Owner	Cengel Fluid Mechanics
2006	Patent Owner	Munson Fundamentals of Fluid Mechanics 2d Edition
2007	Patent Owner	Heywood Internal Combustion Engine Fundamentals, 2d Edition
2008	Patent Owner	Martinez Liquid Sprays
2009	Patent Owner	Fox Introduction to Fluid Mechanics 4th Edition
2010	Patent Owner	Micklow Primary and Secondary Spray Breakup
2011	Patent Owner	Lefebvre Atomization and Sprays 2d Edition
2012	Patent Owner	Micklow Fuel Spray Modeling
2013	Patent Owner	Smith Scientific Design of Exhaust & Intake Systems
2014	Patent Owner	Lefebvre Atomization and Sprays
2015	Patent Owner	Patent Owner's Supplemental Evidence in Response to Petitioner's Objection to Evidence

I. INTRODUCTION

Petitioner has not carried its burden under 37 C.F.R. § 42.121(d)(2) of proving, by a preponderance of the evidence, unpatentability of Patent Owner's ("PO") substitute claim 21. Petitioner's Response ("Response") to PO's Revised Motion to Amend ("Revised Motion") instead relies on misstatement of the Board's Guidance, improper citations to and mischaracterizations of Dr. Micklow's testimony, and tautological conclusions that the arguments advanced in the Petition must be true generally, and thereby true and applicable to claim 21. Petitioner's Response has not carried its burden to prove unpatentability by preponderance, and claim 21 should be found patentable.

II. CLAIM 21 COMPLIES WITH § 112.

A. Claim 21 Is Supported by the Specification.

Petitioner advances a threadbare argument against finding written support for Claim 21, asserting a lack of "objective structural or operational criteria, such as chamber dimensions, inlet angle, baffle spacing, pressure conditions, or flow-rate parameters, that would allow a POSITA to determine which inlet/baffle arrangements satisfy the limitations across its full scope." Paper 30, 3-4. As the Federal Circuit has explained,

"written description is about whether the skilled reader of the patent disclosure can recognize that what was claimed corresponds to what was described; it is not about whether the patentee has proven to the skilled reader that the invention works, or how to make it work. . . ."

CenTrak, Inc. v. Sonitor Techs., Inc., 915 F.3d 1360, 1366 (Fed. Cir. 2019) (quoting *Alcon Research Ltd. v. Barr Labs., Inc.*, 745 F.3d 1180, 1190 (Fed. Cir. 2014)). The Federal Circuit in *CenTrak* reversed a finding of invalidity by the district court based on technical details that “were not particularly complex or unpredictable,” and that the Petitioner “[did] not explain why a person of ordinary skill in the art would need to see such details in the specification to find that the named inventors actually invented the claimed system.” *Id.* at 1368.

Similarly here, claim 21 has adequate written disclosure supporting the added limitation that “said silencer inlet is disposed relative to said baffle to substantially direct a flow of said fluid dispersion towards said baffle before said fluid dispersion exits said silencer chamber through said silencer outlet, thereby maximizing disruption of said flow of said fluid dispersion.” Paper 25, Claim Appendix. The specification language and drawings cited in PO’s Revised Motion provide sufficient detail for a “skilled reader of the patent disclosure” to “recognize that what was claimed corresponds to what was described.” *See Centrak*, 915 F.3rd at 1366.

B. Claim 21 Is Definite.

The Federal Circuit has “rejected the proposition that claims involving terms of degree are inherently indefinite.” *Sonix Tech Co. v. Publ’ns Int’l, Ltd.*, 844 F.3d 1370, 1377 (Fed. Cir. 2017) (internal citations omitted). Instead, “[c]laim language

employing terms of degree has long been found definite where it provided enough certainty to one of skill in the art when read in the context of the invention." *Id.* (internal quotations omitted). Claim 21 as proposed adds such context to the operation of the claimed invention (as explained in the Revised Motion) by explaining to a POSITA the structural limitation by which the “maximiz[ation]” is itself defined. Paper 25, 9-10. None of Petitioner’s evidence speaks to whether a POSITA would lack clarity in the requirement of the term “substantially direct” in the context of claim 21, rendering the claim definite.

Accordingly, Petitioner has failed to demonstrate by a preponderance of the evidence that claim 21 is unpatentable under § 112.

III. THE ASSERTED ART DOES NOT OBVIATE CLAIM 21.

Petitioner bears the ultimate burden of proving, by a preponderance of the evidence, that claim 21 is unpatentable. 37 C.F.R. § 42.121(d)(2); Preliminary Guidance (“PG”) Paper 22, Page 6. Petitioner instead offers inapposite arguments that do not teach the additional structural clarifications of claim 21, along with citations to its expert that fail to discuss the claimed features at all, let alone establish their obviousness to a POSITA. Accordingly, it should be found that the Petitioner has not met its ultimate burden of proving that the claims, as amended, are unpatentable.

A. Grounds 1 and 2: Sevy, Alone Or Combined With Zeng, Does Not Render The Substitute Claim Obvious.

Sevy does not teach or obviate the relevant structural limitations of claim 21. The Board has correctly noted Petitioner’s failure to demonstrate “that the relative disposition of Sevy’s separator plate and inlet will direct the flow of fluid towards the baffle . . . so as to maximize said disruption of flow,” and that “Dr. White’s statement . . . is insufficient because (1) Dr. White does not address the relative disposition of the inlet and baffle” Paper 22, 13 (quotation omitted).

That said, Sevy does not (and cannot) teach the structural limitations of claim 21 because Sevy does not include a “silencer inlet” as part of a “silencer assembly having a silencer chamber” where said inlet substantially directs the fluid dispersion toward the separator plate. *See* Paper 25, Claims Appendix. While Petitioner attempts to rewrite claim 21 to require only that “the fluid dispersion is substantially directed toward the baffle,” Paper 30, 10, this leaves out the crucial structural relationship also ignored by Dr. White: that the **silencer inlet** must substantially direct the fluid dispersion toward the baffle (or separator plate). In fact, Petitioner does not identify any inlet in Sevy that **could** be part of a purported silencer assembly or direct the fluid dispersion toward separator plate. This is because no such functional inlet exists in Sevy, which teaches instead an exit orifice 119 of a siphon 96 toward a wall 121 of a separator 120. Ex. 1009, Para. [0082], FIG. 9.

Petitioner, having claimed thus far in this proceeding that the separator plate 98 equates to a “baffle” for the purposes of the subject claims, cannot now assert that such an analogy extends to the entire separator 120 of Sevy. Exit orifice 119—the only possible analog of a silencer inlet—expressly directs the fluid droplets to wall 121, where they “dash against the wall” and large droplets break or agglomerate before sliding back down into the reservoir 18. *Id.*, Para. [0082]. Furthermore, the fluid in Sevy is described as “droplets of various sizes”, not yet uniform and so uniform as required of a “fluid dispersion” with reference to the specification. *See id.*

Accordingly, as a fluid dispersion is not being directed toward a baffle by a specifically oriented inlet existing as part of a silencer assembly, Sevy does not anticipate claim 21. Further, Petitioner has advanced no argument that a POSITA would find each claim limitation obvious. The addition of Zeng by Petitioner, meant to address a generic silencer functionality in the prior art, does not cure this lack of key structural disclosure or teaching. As a result Petitioner has not shown the claim is unpatentable.

B. Grounds 3 and 4: Goubet, Alone or Combined With Kaiser, Do Not Render The Substitute Claim Obvious.

In its attempt to leverage Goubet against claim 21, Petitioner conflates two separate aspects of the claimed invention which are not identical or interchangeable. Petitioner argues that Goubet teaches claim limitation 21[G] via disclosure of a

“substantially diametrically opposed” inlet 15 and outlet 16, relative to passage 14, to which Goubet attributes the reduction of size of the fluid dispersion droplets. Paper 30, 14-15. Petitioner relies on Dr. White’s testimony that collision with “surrounding walls” and sustaining repeated shocks results in this size reduction. *Id.*

As explained in PO’s Response and Dr. Micklow’s declaration, the size of the microdroplet dispersion as affected by the interior dispersion assembly geometry is relevant to “scent consistency and delivery efficiency” via the achievement of a “uniform fluid dispersion” as defined in this proceeding. Paper 16, Page 27; *see* Ex. 2002, Paragraph 39. This is entirely distinct from the silencer functionality, which relies on the maximized disruption required by claim 21. *See* Ex. 2002, Paragraph 40 (“[T]he ‘094 Patent which uses controlled flow disruption . . .to manage acoustic energy.”).

In sum, Goubet teaches substantial **orientation** of the **inlet and outlet** relative to the **flow path** instead of the **baffle**, and droplet size reduction via impact with the silencer **walls**. Claim 21, meanwhile, requires substantial **direction** of the flow by the relative orientation of the inlet **and the baffle**, to achieve maximum **flow disruption**. Goubet does not teach or suggest this structural requirement or functional outcome and does not obviate claim 21.

Petitioner’s addition of Kaiser does not save its argument. As noted by the Board, “Petitioner does not rely on Kaiser as disclosing the added ‘maximize

disruption' limitation. . . . Thus, Petitioner's ground based on the combination of Goubet and Kaiser suffers from the same issue as Goubet alone." Paper 22, Page 15. Whether or not Kaiser teaches a "fluid dispersion" in accordance with the Application is irrelevant to the missing structural teachings highlighted above.

C. Grounds 5 and 6: Gao, Alone Or Combined With Zeng, Does Not Render The Substitute Claim Obvious.

Petitioner's reliance on Gao suffers from many of the same fatal defects as its citations to Sevy. Petitioner admits that Gao teaches a "rising flow . . . directed toward baffle 3 before discharge, causing the gas-liquid mixture to collide with inner wall 101 before exiting through hole 4 and atomizing gas outlet 2." Paper 30, Page 17 (citing Ex. 1013, Para. [0019]-[0025]). This "rising flow" is taught by Gao to occur when "[t]he smallest particles will float in the air, and drift out through the hole 4" after ejection of the "high-speed gas liquid mixture" through a "gas flow flow port" to "hit[] an inner wall 101 of the lower part cavity 10." *Id.* Notably, the baffle 3 of Gao is "fixed to an upper part of the upper cavity, thereby forming an outlet for the rising gas flow, which is the hole 4 provided between the top part cavity and the low part cavity." *Id.*

Gao clearly cannot teach or suggest claim 21 as written. The prior art includes the same inapposite technology as Sevy—direction of a non-uniform fluid spray toward a wall **before** the particles move toward a baffle which **also** forms the initial outlet of the chamber into which the spray was directed. This cannot map to a

silencer chamber comprising a silencer inlet which substantially directs a uniform fluid dispersion toward a baffle before the dispersion exits via a silencer outlet, thereby maximizing disruption of the fluid dispersion flow. Gao's passively rising flow in fact originates from the direction of a fluid spray toward a wall to **begin** the process of creating a uniform dispersion.

In response, Petitioner can only offer a reductive and incorrect assertion that maximized disruption is achieved in claim 21 whenever "a flow is substantially directed toward the baffle" and Dr. White's testimony also fails to consider the function arising from the relative orientation of the silencer inlet and the baffle or explain why the structural limitations of claim 21 would be obvious to a POSITA. The addition of Zeng, as with Sevy, only goes to a generic silencer functionality and does not cure these detriments.

It is clear that none of the cited prior art obviates the structural limitations of claim 21 which enable the maximized disruption of fluid dispersion flow. As such, Petitioner's obviousness arguments fail and do not show the claim as unpatentable.

IV. CONCLUSION

For the reasons set forth above, Petitioner has failed to carry its burden under 37 C.F.R. § 42.121(d)(2) of proving, by a preponderance of the evidence, that Patent Owner's proposed substitute claim 21 is unpatentable. Patent Owner's Revised

Contingent Motion to Amend should therefore be granted in the event that the '094 Patent is found unpatentable as it currently stands.

Dated: July 9, 2026

Respectfully submitted,

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CERTIFICATE OF COMPLIANCE WITH PAGE COUNT LIMIT

Pursuant to 37 C.F.R. § 42.24(d), the undersigned certifies that the instant Reply remains within the twelve-page limit, not including exempted sections.

Dated: July 9, 2026

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the instant Reply has been served in its entirety on July 9, 2026, by causing the instant Reply and any accompanying documents to be electronically mailed to the following attorneys of record for the Petitioner:

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