

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AROMA360, LLC
Petitioner,

v.

AIR ESSSENTIALS, INC.
Patent Owner.

Case IPR 2025-00707
Patent 10,092,918

**PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 10,092,918**

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Exhibit 1026	Lighthill, M. J., <i>On Sound Generated Aerodynamically</i> , I. General Theory. Proc. Roy. Soc. (London), Ser. A, vol. 211, no. 1107 (Mar. 20, 1952), pp. 564-587 (hereinafter, “Lighthill”)
Exhibit 1027	NOISE AND VIBRATION CONTROL ENGINEERING: PRINCIPLES AND APPLICATIONS (2006), Ed. I.L. Ver and L.L Beranke, Wiley & Sons, ISBN-10 0-471-91842-3 (hereinafter, “the Noise Control Book”)

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Exhibit 1041	Chinese Utility Model Patent 204072864 (hereinafter, “Gao-2”)
Exhibit 1042	Certified English-language Translation of Gao-2
Exhibit 1043	Prosecution History of U.S. Patent 9,527,094

I. INTRODUCTION

Aroma360, LLC (“Petitioner”) requests *Inter Partes* Review (“IPR”) of claims 1 and 3-8 (“challenged claims”) of U.S. Patent No. 10,092,918 (“the ‘918 Patent”) (Ex-1001), assigned to Patent Owner Air Essentials, Inc. (“PO”).

II. MANDATORY NOTICES UNDER 37 C.F.R. § 42.8

Petitioner satisfies each requirement for IPR of the ‘918 Patent pursuant to 37 C.F.R. § 42.8(a)(1).

A. Real Party in Interest Under 37 C.F.R. § 42.8(b)(1)

The Real Party in Interest is AROMA 360, LLC having a principal place of business at 2058 N.W. Miami Court, Miami, FL 33127.

B. Related Matters Under 37 C.F.R. § 42.8(b)(2)

PO has asserted the ‘918 Patent against Petitioner in *Air Essentials, Inc. v. Aroma360, LLC*, Case No. 1:24-cv-20594-KMW (S.D. Fla).

C. Lead and Back-Up Counsel Under 37 C.F.R. § 42.8(b)(3)

Petitioner is represented by the following counsel:

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Pursuant to 37 C.F.R. § 42.10(b), Powers of Attorney have been filed with this Petition.

D. Service Information Under 37 C.F.R. § 42.8(b)(4)

Petitioner consents to electronic service by email at the above email addresses provided for lead and backup counsel.

III. FEES AUTHORIZATION

Pursuant to 37 C.F.R. § 42.15(a) and § 42.103(a), the USPTO is authorized to charge any and all fees for this Petition, not submitted herewith, to Deposit Account No. 50-1662.

IV. GROUNDS FOR STANDING

Petitioner certifies that the ‘918 Patent is available for IPR, and that Petitioner is not barred or estopped from requesting review. 37 C.F.R. § 42.104(a). Petitioner agreed to waive service of the underlying infringement complaint of the ‘918 Patent on March 18, 2024, and the waiver was then filed with the district court on March 27, 2024. Ex-1019. This Petition was filed within one year of the date of that waiver of service. *See Motorola Mobility LLC v. Arnouse*, IPR2013-00010, Paper 20 at 6 (PTAB Jan. 30, 2013) (informative) (“in the situation where the petitioner waives service of a summons, the one-year time period begins on the date on which such a waiver is filed.”).

V. PRECISE RELIEF REQUESTED

Petitioner requests review and cancellation of claim 1 and 3-8 as unpatentable based on the following grounds, supported by a declaration from Dr. Christopher White. Ex-1002; Ex-1003.

Ground	Prior Art	Basis	Claims Challenged
1	Goubet	§103	1 and 3-8

Ground	Prior Art	Basis	Claims Challenged
2	Goubet in view Kaiser	§103	1 and 3-8
3	Gao-2	§103	1 and 3-8
4	Gao-2 in view Goubet	§103	1 and 3-8

VI. THE CHALLENGED PATENT

The ‘918 Patent, assigned to Air Essentials, Inc. (“PO”), is directed to a fluid dispersion assembly that is powered by compressed air and designed to deliver fluids, such as fragrant oils and essential oils, into the air. Ex-1001, 1:7-54. The ‘918 Patent explains that known fluid dispersion assemblies of this type are “often unacceptably noisy,” and states there is a need for a fluid dispersion assembly that operates quietly while generating a fluid dispersion having a “uniform particle size distribution.” *Id.*, 1:33-43. However, as explained herein and in Dr. White Declaration, devices configured to disperse fluid particles of substantially uniform size, have been well known for decades, and are colloquially referred to as monodisperse devices. Noise was also a known issue for these devices and many such devices included structures to reduce noise during operation.

A. Summary of the Disclosure of the ‘918 Patent

The ‘918 Patent describes several embodiments of the fluid dispersion assembly, each with distinct configurations designed to disrupt the flow of fluid dispersion and, as a result, reduce noise generated during operation. Ex-1001. In a

first embodiment, as annotated in FIG. 3,¹ the fluid dispersion assembly includes “a suppression chamber.” *Id.*, 6:8-10. “[T]he suppression chamber 232 receives the fluid dispersion from the mixing chamber 226 ... [and] helps to suppress the noise generated during operation of the fluid dispersion assembly 10 as it *disrupts the path of flow of the fluid dispersion* out of atomizer assembly 200 and into diffusion chamber 112, and therefore, *disrupts and dampens sound waves associated therewith.*” (emphasis added)². *Id.*, 6:11-18.

¹ All colorizations and/or annotations of the '918 Patent and/or prior art figures in this Petition are provided by Petitioner unless otherwise noted.

² Emphasis always added by Petitioner unless otherwise noted.

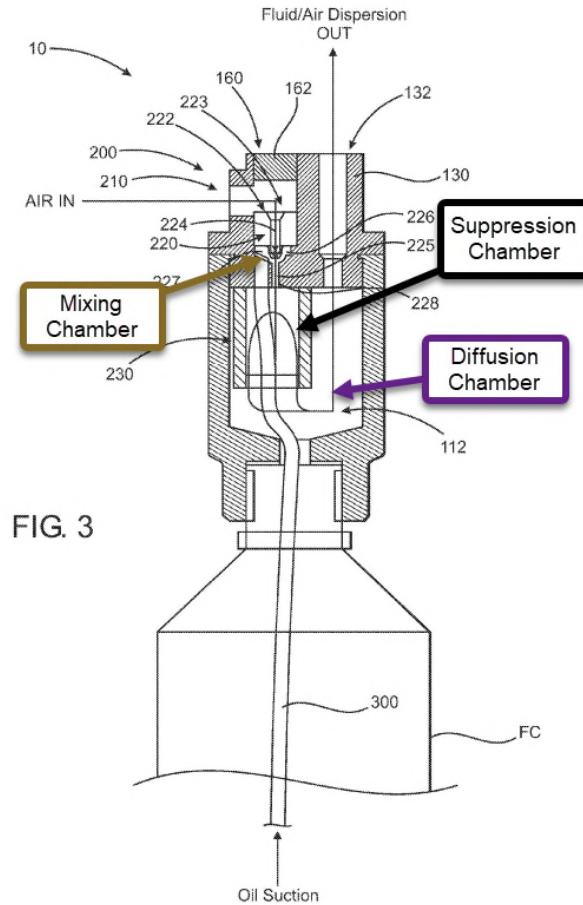


FIG. 3

Ex-1001, FIG. 3

In a second and alternative embodiment, shown below in FIG. 5, fluid dispersion assembly 10 has a “modified diffusion chamber 112’” that is structured in an “upside down L-shaped configuration” defining an “axial portion 114” and a “transverse portion 115.” *Id.*, 7:10-21. “[F]luid dispersion discharged ... into diffusion chamber 112’ is interrupted and redirected by virtue of axial portion 114 and transverse portion 115 ... [and] serves to suppress or dampen sound waves generated therein, in a similar manner as the suppression chamber 232 of the previously disclosed embodiments.” *Id.*, 7:33-42.

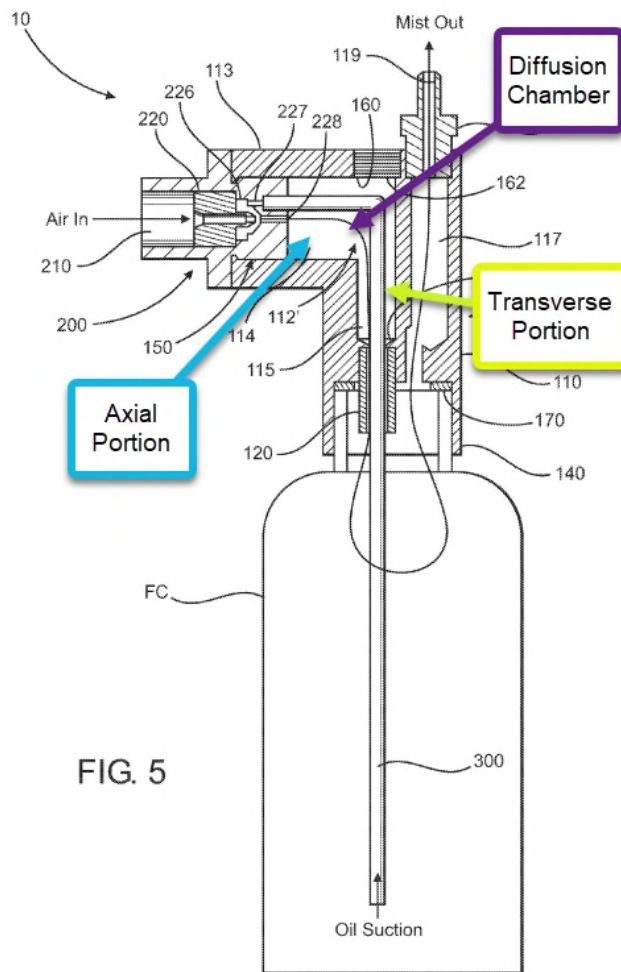
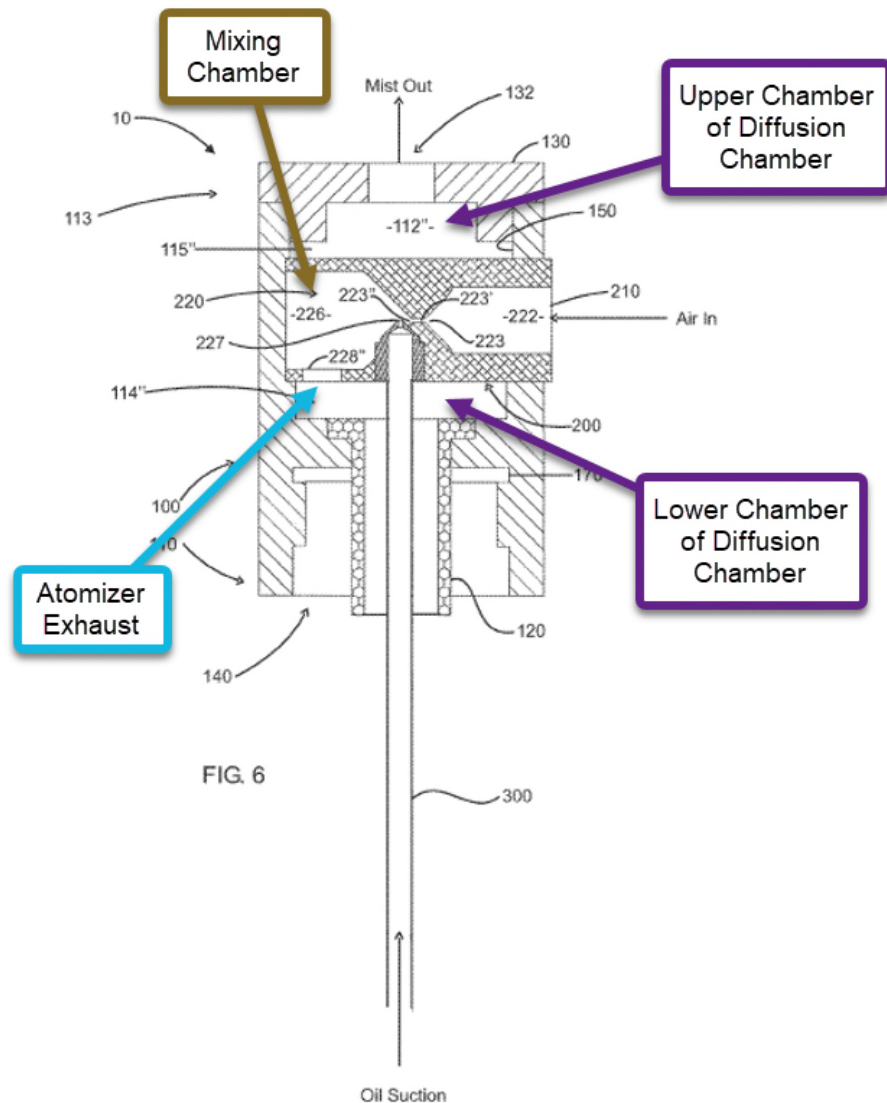


FIG. 5

Ex-1001, FIG. 5

In a third alternative embodiment, diffusion unit 100 has another “modified diffusion chamber 112.” *Id.*, 10:46-48. “[T]he modified diffusion chamber 112 of the embodiment of FIG. 6 serves to suppress and/or dampen sound waves generated during operation . . . without the need for a separate suppression chamber, as in previously disclosed embodiments.” *Id.*, 10:52-56.



Ex-1001, FIG. 6

As depicted, “the modified diffusion chamber 112” comprises a lower chamber 114” which is disposed below and adjacent to the discharge of a fluid dispersion through the atomizer exhaust aperture 228” and “an upper chamber 115”

. . . disposed above the diffusion assembly 200 . . . substantially opposite to the direction of flow of a fluid dispersion from atomizer exhaust aperture 228.” *Id.*, 10:59-64. The ‘918 Patent recites, “[m]ore importantly, the fluid dispersion discharged from the atomizer assembly 220 through atomizer exhaust aperture 228” into [modified] diffusion chamber 112” *is interrupted and redirected by virtue of lower chamber 114” and upper chamber 115”.*” *Id.*, 11:1-5. This feature is designed to suppress sound waves generated in the fluid dispersion assembly. *Id.*, 11:5-14.

According to the ‘918 Patent, each of the three alternative embodiments discussed above reduce noise during operation by disrupting the flow of fluid dispersion through the fluid dispersion assembly. Ex-1001. A POSITA would thus understand that the ‘918 Patent teaches that the noise reduction (*e.g.*, dampening of sound waves) is a byproduct of disrupting the flow of fluid dispersion. Ex-1002, ¶¶[0068-79].

B. Priority Date of the ‘918 Patent

The ‘918 Patent was filed on November 17, 2016 as Application No. 15/353,951 (“the ‘951 Application”). EX1001, INID Codes (21), (22). The ‘951 Application is a Continuation-In-Part (“CIP”) of Application No. 14/844,650, filed on September 3, 2015 (now Patent No. 9,527,094), which is a continuation of Application No. 13/838,634, filed on March 15, 2013 (now Patent No. 9,126,215),

which claims priority to Provisional Application No. 61/694,500 (“the Provisional Application”), filed on August 29, 2012.³ EX1001, INID Codes (21), (22).

The challenged claims of the ‘951 and ‘373 Applications (*i.e.*, the ‘918 and ‘449 Patents) rely on new matter that was first introduced in the November 17, 2016 application. Nevertheless, the references relied upon in this Petition, with one exception, are prior art even assuming the claims are entitled to claim priority to August 29, 2012.

The one exception, discussed in greater detail below, is Chinese Utility Model Patent 204072864 to Gao (“Gao-2”). Ex-1042, INID Codes (10), (72). Gao-2 was filed on August 6, 2014 and published at least by January 7, 2015. Ex-1042, INID Codes (22), (45).

The earliest date the challenged claims find support is in the specification filed on November 17, 2016. In particular, all challenged claims recite an “upper chamber” and a “lower chamber.” *See* EX1001, 12:3, 25-27, 39-40.⁴ The specification of the ‘918 patent is substantively identical to that of the earlier-issued

³ The ‘094 Patent is subject to a concurrently filed Petition for *inter partes* review along with a Petition seeking review of related Patent No. 10,583,449. The ‘215 Patent was not asserted in the parallel district court proceeding and is not being challenged at this time.

⁴ The challenged claims also recite “an atomizer exhaust aperture,” which is likewise a limitation that only finds support in the November 17, 2016 filing.

‘094 patent, but for the addition of a new figure—Figure 6—and additional, new corresponding written description. See EX1001, Fig. 6, 2:65-67, 7:58, 11:28. Figure 6 of the ‘918 patent depicts a new embodiment not disclosed in any of the earlier filings. As noted above, the specification explains that Figure 6 “is illustrative of an alternative embodiment of a diffusion unit 100 having a modified diffusion chamber” and “in particular, the modified diffusion chamber 112” is configured to suppress and/or dampen sound waves generated during operation . . . without the need for a separate suppression chamber, as in previously disclosed embodiments.” *Id.*, 10:46-56, 10:57-59.

More specifically, “the modified diffusion chamber 112” comprises a lower chamber 114” which is disposed below and adjacent to the discharge of a fluid dispersion through the atomizer exhaust aperture 228”“ and “an upper chamber 115” . . . disposed above the diffusion assembly 200 . . . substantially opposite to the direction of flow of a fluid dispersion from atomizer exhaust aperture 228”.” *Id.*, 10:59-67. According to the ‘918 patent, “[m]ore importantly, the fluid dispersion discharged from the atomizer assembly 220 through atomizer exhaust aperture 228” into diffusion chamber 112” is interrupted and redirected by virtue of lower chamber 114” and upper chamber 115”.” *Id.*, 11:1-5. This feature is designed to suppress sound waves generated in the fluid dispersion assembly. *Id.*, 11:5-10.) The specification further teaches that the compressed air flowpath through the atomizer

assembly 200 of Figure 6 “extends horizontally through the . . . atomizer air inlet channel 222 . . . and out through the atomizer exhaust aperture 228.” *Id.*, 10:17-24.

The specification further explains that “[a]fter being discharged from the mixing chamber 226 through the atomizer exhaust aperture, 228”, the fluid dispersion is at least partially deflected into the freeboard above the liquid in the fluid container.” *Id.*, 11:15-18. Further, “[a] portion of the fluid dispersion is also deflected against the bottom surface of the lower chamber 114” of the modified diffusion chamber 112” and upwardly into the upper chamber 115” of the modified diffusion chamber 112” before being discharged through discharge port 132 into the airspace surrounding the fluid dispersion assembly 10.” *Id.*, 11:22-28.

“The difference between a continuation application and a continuation-in-part application is that a continuation contains the same disclosure found in an earlier application, whereas a continuation-in-part contains a portion or all of the disclosure of an earlier application together with added matter not present in the earlier application.” *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1321 n.2 (Fed. Cir. 2008); *see* 35 U.S.C. § 120. “Generally, a CIP adds new matter on which at least one claim relies for support.” *PowerOasis, Inc. v. T-Mobile USA, Inc.*, 522 F.3d 1299, 1304 n.3 (Fed. Cir. 2008). Stated differently, “a patent application is entitled to the benefit of the filing date of an earlier filed application only if the disclosure of

the earlier application provides support for the claims of the later application.” *Id.* at 1306 (citations omitted); *see* 35 U.S.C. § 112. Therefore, “[d]ifferent claims of [a CIP] application may . . . receive different effective filing dates” and “[s]ubject matter that arises for the first time in [a] CIP application does not receive the benefit of the filing date of the parent application.” *Augustine Med., Inc. v. Gaymar Indus., Inc.*, 181 F.3d 1291, 1302-03 (Fed. Cir. 1999).

Because the challenged claims all rely on new matter for support, they are only entitled to the benefit of the filing date of the application that provided support for such claims, which is the November 17, 2016 filing. *Compare* Ex-1004 (disclosing new matter on which all challenged claims rely for support), *with* Ex-1043 (prosecution history of the ‘650 application, which fails to provide support for the full scope of the challenged claims, including the “upper chamber,” “lower chamber,” and “atomizer exhaust aperture;” the ‘918 Patent is a CIP of the ‘650 application), Ex-1005 (prosecution history of the ‘634 application, which fails to provide support for the full scope of the challenged claims, including the “upper chamber,” “lower chamber,” and “atomizer exhaust aperture;” the ‘094 Patent is a continuation of the ‘634 application), and Ex-1006 (prosecution history of the Provisional Application, which fails to provide support for the full scope of the challenged claims, including the “upper chamber,” “lower chamber,” and “atomizer

exhaust aperture”). Thus, the earliest priority date afforded the challenged claims is November 17, 2016.

Here, the only possible priority claims that predates January 7, 2015 (the publication date of Gao-2) are claims to the ‘215 Patent and the Provisional Application, which are presumptively not effective unless and until Patent Owner satisfies its burden showing the claims of the ‘918 Patent are entitled to either of those dates. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1379–80 (Fed. Cir. 2015) (Patent Owner has burden to prove entitlement to provisional filing date and stating, “the Board has no basis to presume that a reference patent is necessarily entitled to the filing date of its provisional application”); *In re NTP, Inc.*, 654 F.3d 1268, 1276 (Fed. Cir. 2011); *Research Corp. Techs., Inc. v. Microsoft Corp.*, 627 F.3d 859, 870–71 (Fed. Cir. 2010).

C. Summary of the Prosecution of the ‘918 Patent

A single office action was issued during prosecution of the ‘918 Patent. Ex-1004, pg. 52. In that office action, the Examiner rejected all independent claims on the ground of non-statutory double patenting over each of the priority patents, including the ‘094 Patent. *Id.*, pgs. 53-58. The Examiner also found that dependent claims 2, 7, and 12 contained allowable subject matter. In response, PO filed Terminal Disclaimers with respect to the priority patents and incorporated the allowable subject matter into independent claims. *Id.*, pgs. 29-37, 41-43. A Notice

of Allowance was then mailed and the ‘918 Patent ultimately issued on October 9, 2018. *Id.*, pgs. 1, 20-23.

D. Summary of the claimed subject matter of the ‘918 Patent

The challenged claims are directed to a fluid dispersion assembly that forms a fluid dispersion and that dampens sound waves when powered by a compressed air source. *See* Appendix. The sound dampening is achieved, according the specification of the ‘918 Patent, as a result of the fluid dispersion being interrupted and redirected by virtue of the lower chamber and the upper chamber. Ex-1001, 11:1-14. The Parties have stipulated that the term “fluid dispersion” should be construed to mean a “mixture of operative fluid in air comprising a plurality of substantially uniform droplets (having substantially the same diameter) of the operative fluid dispersed throughout the air.” Ex-1018, Exhibit A.

VII. LEVEL OF ORDINARY SKILL IN THE ART

This Petition is supported by the declaration of Dr. Christopher White. Ex-1002. In the declaration, Dr. White opines on the knowledge of a POSITA with respect to the issues raised herein. *Id.*

In view of the subject matter of the ‘918 Patent, a person of ordinary skill in the art (“POSITA”) would have either: (1) a bachelor’s degree in mechanical engineering, aerospace engineering, chemical engineering, or a closely related field and at least 2 years of work experience designing or developing products involving

fluid dynamics; or (2) a master's degree in mechanical engineering, aerospace engineering, chemical engineering, or a closely related field, and at least one year of work experience in fluid dynamics or fluid systems engineering. Ex- 1002, ¶¶36-44. Dr. White meets this level of skill based on his education and experience. *See generally* Ex-1002; *see also* and Ex-1003.

VIII. CLAIM CONSTRUCTION

For purposes of this IPR, Petitioner views the scope of the challenged claims in a manner that is consistent with PO's broad infringement allegations and proposed claim constructions submitted in the parallel district court proceeding.⁵ Ex-1017 and Ex-1018, Ex-1039, Ex-1040. PO included the following photographs in its infringement allegations: (A) Petitioner's Museum360 Scent Diffuser; and (B) the fluid dispersion assembly and atomizing core housed within the diffuser.

⁵ A *Markman* hearing is scheduled to occur on April 17, 2025. Petitioner may request leave to submit the district court's claim construction in this proceeding as soon as it becomes available.



(A)



(B)

Petitioner does not believe any term needs to be construed by the PTAB to determine the claims are rendered obvious over the cited prior art.⁶ *Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011) (“claim terms need only be construed to the extent necessary to resolve the controversy”).

⁶ Petitioner reserves the right to present its own construction of any claim of the '918 Patent, including constructions that disagree with PO's infringement allegations and proposed constructions. See EX-1018 (providing Petitioner's proposed construction of certain claim terms).

IX. STATE OF TECHNOLOGY & SUMMARY OF THE PRIOR ART

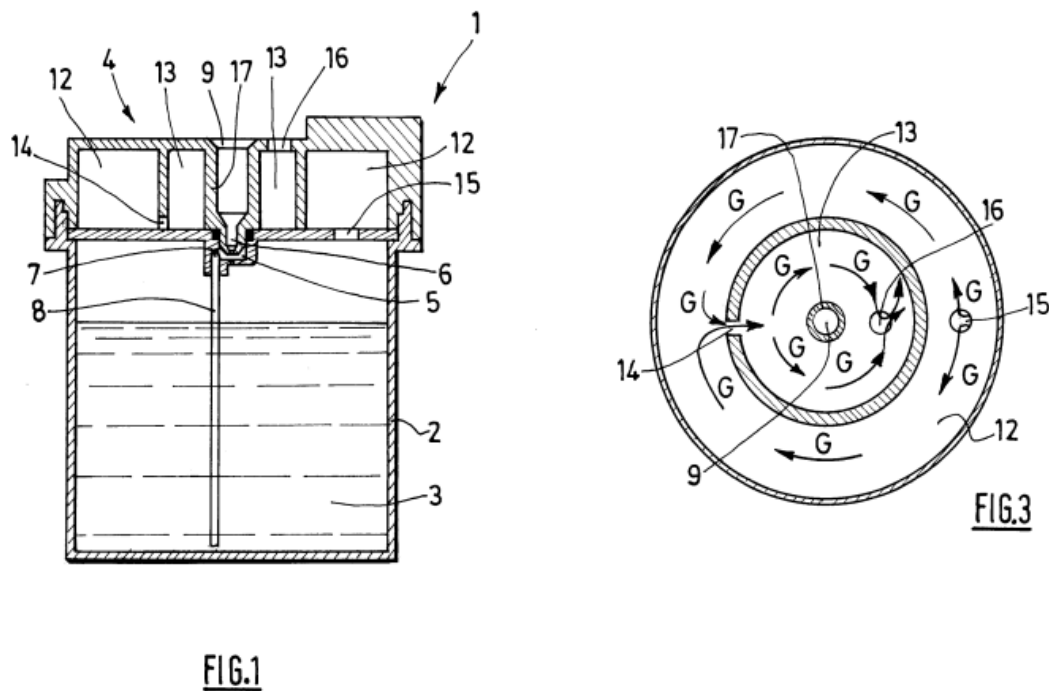
A. State of Technology at the Time of the Alleged Invention

Fluid dispersion assemblies have been used for decades. Ex-1002, ¶¶62-67 (discussing Ex-1020, Ex-1021, and Ex-1022). Such assemblies have also long used compressed air and utilized the venturi effect to aspirate fluid upward from a reservoir. *Id.*, *see also id.*, ¶¶62-107 (discussing, *inter alia*, EX1031 and EX1032). While there are several design considerations for fluid dispersion assemblies, the considerations most relevant to this IPR—(1) size and uniformity of droplets, and (2) minimizing noise associated with compressed air—were known long before the ‘918 Patent. Ex-1002, ¶¶62-107. Advantages of producing small and substantially uniform droplets, as well as structural design mechanisms for producing the same, have been long studied and were well known before the invention of the ‘918 Patent. *See, e.g.*, Ex-1002, ¶¶ 80-102 (discussing, *inter alia*, Ex-1028, Ex-1029, Ex-1030, Ex-1033, Ex-1034, Ex-1035, Ex-1036, Ex-1037). It has also been long known how to reduce noise in fluid dispersion assemblies, including through the use of a baffle. *See, e.g.*, Ex-1002, ¶¶ 68-79 (discussing, *inter alia*, Ex-1023, Ex-1024, Ex-1025, Ex-1026, Ex-1027).

B. French Patent Publication No. 2886160 (“Goubet”) (Ex-1015)⁷

Goubet was published on December 1, 2006, and is prior art to the claims of the ‘918 Patent under 35 U.S.C. §102(b). EX-1016, Cover. Goubet’s essential oil diffuser includes a diffuser head 4 defining an outer enclosure 12 and an inner enclosure 13, that are in communication with each other, and that form a baffled path through which atomized droplets flow. Ex-1016, 4:3-6. During atomization, air and essential oil are mixed together within diffusion chamber 5 to generate oil droplets. *Id.*, pg. 4:21-22. From the diffusion chamber 5, the oil droplets are discharged downwardly, through outlet 11 and toward reservoir 2, before the droplets pass rise through inlet 15 into diffuser head 4. *Id.*, 4:25-27. Once in diffuser head 4, the droplets travel along the baffled path, as illustrated in FIGS. 2 and 3 below, and break into micro-droplets, before being discharged into ambient air through outlet 16. *Id.*, pages 4:26-5:8.

⁷ The certified translation of Goubet is provided as Ex-1016. Citations and quotations herein to Goubet will refer exclusively to this certified translation.



Ex-1016, FIGS. 1 and 3

C. Chinese Utility Model Patent 204072864 (“Gao-2”)⁸ (Ex-1041)

Gao-2 was published on January 7, 2015, and therefore, is presumptively prior art to the claims of the ‘918 Patent under 35 U.S.C. §102(b), at least for the reasons set forth above in Section VI(B). EX-1016, Cover. Gao-2 discloses an atomization device 3, as shown in FIG. 4 below, that can be connected to an air pump 4 and an essential oil bottle 2. Ex-1042, ¶[0027].

⁸ The certified translation of Gao-2 is provided as Ex-1042. Citations and quotations herein to Gao-2 will refer exclusively to this certified translation.

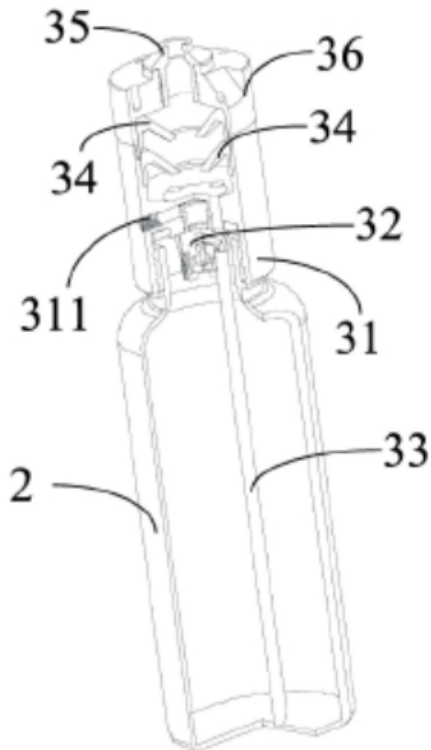


FIG. 4

Ex-1042, FIG. 4

As depicted, atomization device 3 includes an atomization core 32 for atomizing the essential oil and a mist outlet 351, formed in cover 36, through which the atomized mist is discharged into the surrounding airspace. *Id.*, ¶¶[0032], [0034]. When air pump 4 is operated, a negative pressure is created within the device, drawing essential oil from bottle 2, through the liquid suction tube 33, and into the atomization core 32. *Id.*, ¶[0036]. Within atomization core 32, “[t]he essential oil then mixes with the airflow and is atomized” before it is sprayed downward, toward the reservoir. *Id.* ¶[0030], [0036]. In this regard, “only the fine fragrant mist” is

capable of being carried upwardly by the airflow and discharged from mist outlet 351. Ex-1042, ¶[0030].

D. Sebastian Kaiser et al., The Electrospray and Combustion at the Mesoscale, (“Kaiser”) (Ex-1014)

Kaiser was published in 2003 (several years before the earliest priority date of the ‘918). Ex-1014, Cover. Therefore, Kaiser is prior art to the ‘918 Patent under 35 U.S.C. §102(b). Kaiser describes that the correlation between uniform droplet size and droplet evaporation rate was a well understood phenomenon in the field, at the time of the invention. Ex-1014, pg. 43 (“critical to uniform evaporation and burning is a good control of the size distribution of the resulting aerosol.”).

X. REASONS THE CHALLENGED CLAIMS ARE UNPATENTABLE UNDER 37 C.F.R. § 42.104(b)(4)

A. Overview of Argument

The ‘918 Patent relates to “a fluid dispersion assembly.” Ex-1001, 1:7-54. Challenged claims 1 and 5 are written in independent form and require a diffusion assembly “disposed between said upper chamber and said lower chamber.” *Id.* (claims 1 and 7). The preambles of independent claims 1 and 7 further require the fluid dispersion assembly generate and discharge a “fluid dispersion.” The Parties have stipulated that this term means a “mixture of operative fluid in air comprising a plurality of substantially uniform droplets (having substantially the same diameter) of the operative fluid dispersed throughout the air.” Goubet and Gao-2 each

individually teach this subject matter in addition to the other limitations of the challenged claims.

Ground 1 addresses claims 1 and 3-8 in view of Goubet. Goubet does not explicitly teach an atomizer that forms “substantially uniform droplets.” However, this limitation is obvious in view of Goubet’s teaching that the dual circular enclosures of the diffusion head are designed to move the droplets along a particular path that allows “their size to be reduced as much as possible” to improve their diffusion in the ambient air. Ex-1016, 2:27-29. This teaching at the very least suggests that the microdroplets are uniform in size as it is well-known that monodispersed droplets exhibit superior dispersion and diffusion properties. Ex-1002, ¶¶[0080]-102.

Ground 2 addresses that if PO argues that the challenged claims are not obvious in view of Goubet alone, then they would also have been obvious over Goubet in view of Kaiser, which teaches that substantially uniform atomized droplets were well-known. Ex-1014, pg. 43. Accordingly, if the diffusion head of Goubet did not already produce substantially uniform atomized droplets, a POSITA would have been motivated to add additional circular enclosures until such result was achieved in light of Kaiser. Ex-1002, ¶¶167-172. As such, the arguments for Ground 2 are substantially the same for the majority of the limitations in the

challenged claims but provide separate alternative basis to teach the “fluid dispersion” limitation.

Ground 3 addresses claims 1 and 3-8 in view of Gao-2. Gao-2 does not explicitly teach an atomizer that forms “substantially uniform droplets.” However, this limitation is obvious in view of Gao-2’s teaching that atomization core 32 atomizes droplets downwardly so that only fine fragrant mist enters an airflow path consisting of a series of noise reduction baffles before being discharged into the surrounding airspace. Ex-1042, ¶[0030], [0032]. This teaching at the very least suggests that the fine mist is of small and uniform size, as it is well-known that like-droplets exhibit superior dispersion and diffusion properties. Ex-1002, ¶¶173-206.

Ground 4 addresses that if PO argues that the challenged claims are not obvious in view of Gao-2 alone, then they would also have been obvious over Gao-2 in view of Goubet, which teaches a diffuser head 4 defining a dual-circular flow path that allows droplet size “to be reduced as much as possible” before the microdroplets are “silently diffused” into the ambient air. *See* Ex-1016, 5:12-16. Accordingly, if apparatus of Gao-2 did not already produce substantially uniform atomized droplets, a POSITA would have been motivated to replace the noise reduction devices of Gao-2 with a circular baffle light of Goubet to further reduce the size of the mist droplets. Ex-1002, ¶207-214. As such, the arguments for Ground 4 are substantially the same for the majority of the limitations in the challenged

claims but provide separate alternative basis to teach the “fluid dispersion” limitation.

B. Ground 1: Claims 1 and 3-8 are Unpatentable Under 35 U.S.C. §103 as Obvious Over Goubet

1) Claim 1

1[PRE] A fluid dispersion assembly operatively engages a container of an operative fluid and a compressed air source and generates and discharges a fluid dispersion into a surrounding airspace, said fluid dispersion assembly comprising:

To the extent the preamble is limiting, it is taught by Goubet, which is titled “essential oil diffuser” and shown in FIG. 1 below. Ex-1016, Cover. The essential oil diffuser of Goubet is designed to break oil droplets into microdroplets and diffuse them into the ambient air in the form of an oil vapor. Ex-1016, 2:1-3.

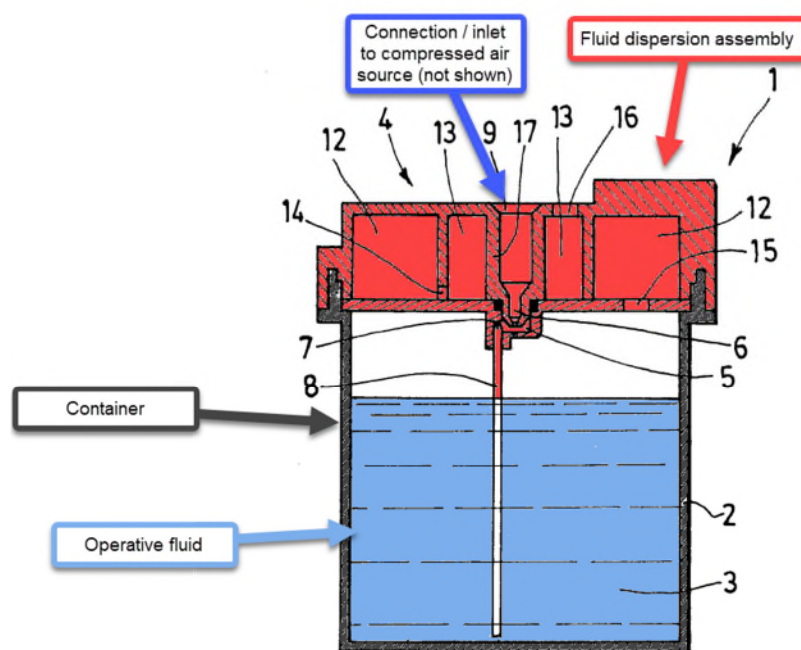


FIG.1

Ex-1016, FIG. 1

The diffuser 1 of Goubet includes a reservoir 2 designed to store oil 3 and a diffuser head 4. *Id.*, 3:24-25. “The diffuser head 4 comprises a diffusion chamber 5 within which oil droplets are produced.” *Id.*, 3:30-31. Diffuser head also includes an on outlet 16 through which microdroplets are discharged into ambient air. *Id.*, 4:10-11. Thus, the diffusion head 4 of Goubet meets the limitation of a fluid dispersion assembly. Ex-1002, ¶121-126.

“The diffuser head may be attached to the reservoir by ultrasonic welding or by any other means, such as gluing or screwing.” Ex-1016, 3:24-25. Goubet teaches, “[t]he diffusion chamber 5 comprises ... an oil inlet in the form of the upper end 10

of a dip tube 8 connected to the essential oil 3 contained in the reservoir 2.” *Id.*, 3:31-4:2. Accordingly, Goubet teaches a fluid dispersion assembly (*e.g.*, diffuser head 4) that is operatively engaged to a container (*e.g.*, reservoir 2) of operative fluid (*e.g.*, oil 3). Ex-1002, ¶121-126.

Goubet further discloses, “[c]ompressed air is supplied by a compressor, not shown, [that] penetrates the diffuser head 4 via an air inlet channel 9, connected to said diffusion chamber 5.” Ex-1016, 4:15-16; *see also* FIG. 2 (where arrows F illustrate the path of compressed air through diffuser head 4). Thus, Goubet teaches a compressed air source (*e.g.* the compressor (not shown)) that is operatively interconnected to the fluid dispersion assembly (*e.g.*, diffuser head 4). Ex-1002, ¶121-126.

In operation, “[w]hen the compressed air flows into the diffusion chamber 5, the essential oil 3 is drawn into the diffusion chamber 5 by the vacuum created ... [a]ir and essential oil are mixed within the diffusion chamber 5 and a flow of oil droplets is created.” Ex-1016, 4:19-22. The microdroplets are eventually discharged from diffuser head 4 into ambient air through outlet 16. *Id.*, 4:10-11.

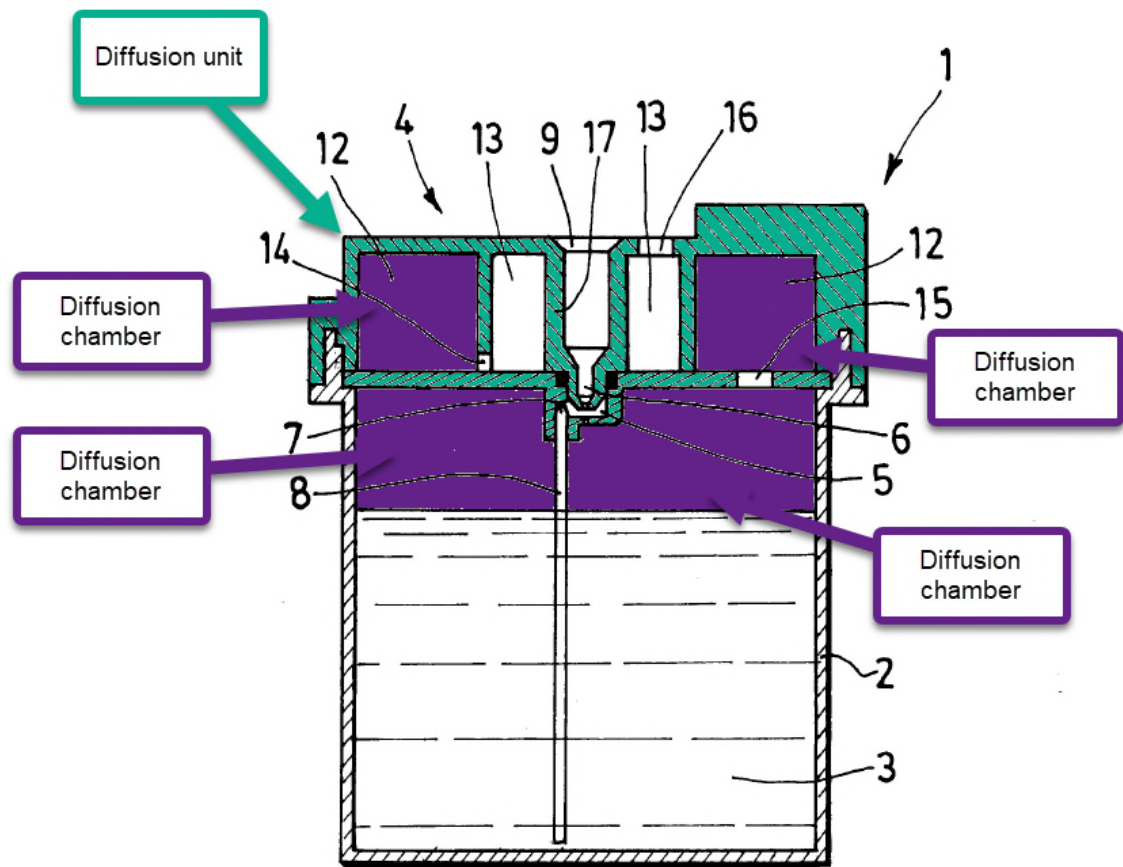
Consequently, Goubet teaches a fluid dispersion assembly (*e.g.*, diffuser head 4) that operatively engages a container (*e.g.*, reservoir 2) of an operative fluid (*e.g.*, oil 3) and a compressed air source (*e.g.*, air compressor described but not illustrated in Goubet) to generate and discharge a fluid dispersion (*e.g.*,

microdroplets) into a surrounding airspace (*e.g.*, the ambient air). Ex-1002, ¶121-126.

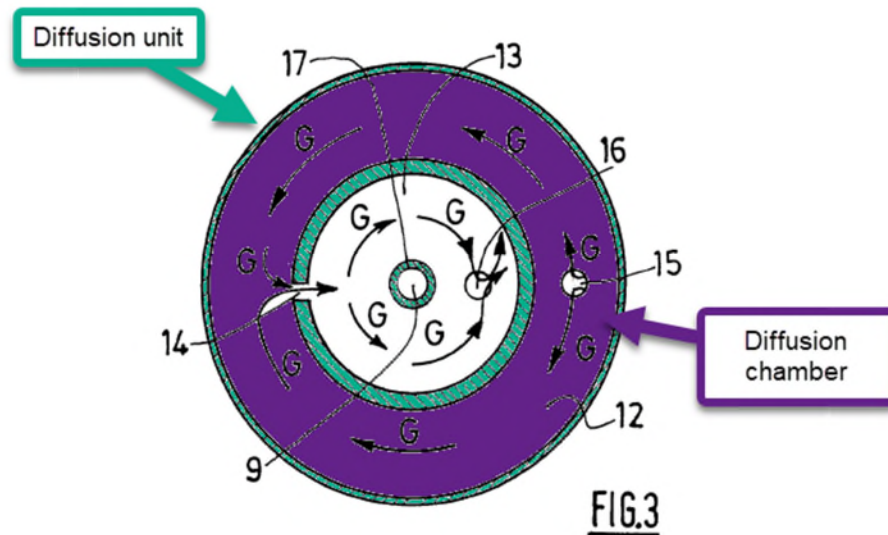
1[A] a diffusion unit at least partially defining an enclosed diffusion chamber,

The diffuser head 4 of Goubet comprises “vaporization means, arranged to break the oil droplets into microdroplets and to diffuse said microdroplets into the ambient air in the form of an oil vapor.” Ex-1016, 2:1-3. In one preferred embodiment, shown in FIGS. 1 and 3, the “vaporization means comprise at least two concentric circular enclosures, an outer enclosure [12] and an inner enclosure [13], communicating with each other through a passage [14], said two enclosures and said passage forming at least one baffle.” *Id.*, 2:16-19.

Goubet goes on to disclose, “[w]ithin this outer enclosure 12, [the droplets] collide with the walls separating the outer enclosure 12 from the inner enclosure 13 and . . . the droplets are broken up into microdroplets.” Ex-1016, 4:28-5:4. Thereafter, “[t]he microdroplets are diffused into the ambient air in the form of essential oil vapour.” Ex-1016, 5:6-7.



Ex-1016, FIG. 1



Ex-1016, FIG. 3

Therefore, the walls of diffuser head 4 (*e.g.*, including the walls separating the outer enclosure 12 from the inner enclosure 13) meet the limitation of a diffusion unit. Ex-1002, ¶¶127-130. As described with respect to the fluid flow path and depicted above, the diffusion unit at least partially defines a diffusion chamber (*e.g.*, shaded purple in FIGS. 1 and 3) within which the droplets are broken into microdroplets. *Id.* As illustrated above, the diffusion chamber is enclosed, for example, by reservoir 2 and diffuser head 4, such that Goubet teaches a diffusion unit at least partially defining an enclosed diffusion chamber. *Id.*

1[B] wherein said diffusion chamber comprises an upper chamber and a lower chamber,

Diffuser head 4 includes an upper chamber and a lower chamber, as annotated in FIG. 1 below. Ex-1002, ¶¶131-132.

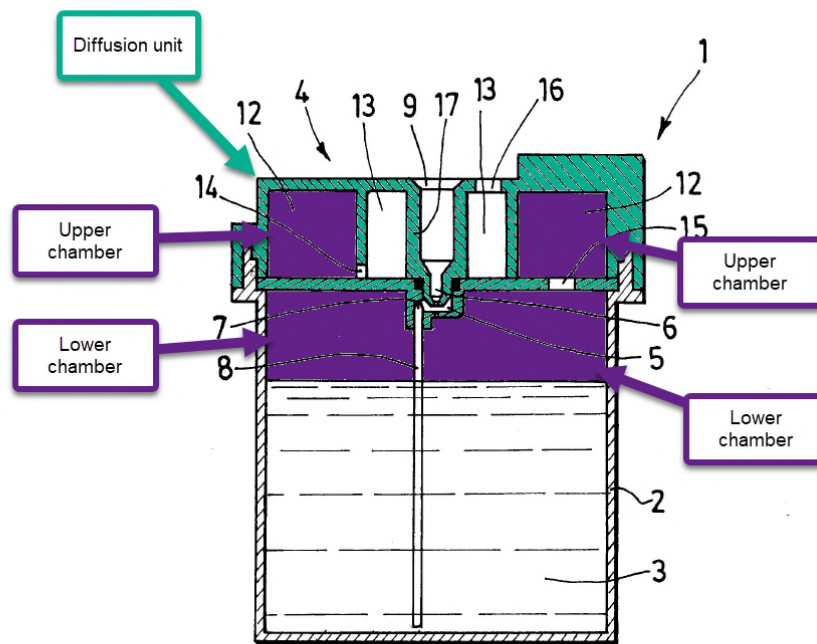


FIG.1

Ex-1016, FIG. 1

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

In describing diffuser head 4, Goubet recites “[t]he inner chamber 13 comprises an outlet 16 for the microdroplets to [exit to] the ambient air.” Ex-1016, 4:10-11. Outlet 16 is illustrated in FIG. 1 below. Ex-1002, ¶133-135.

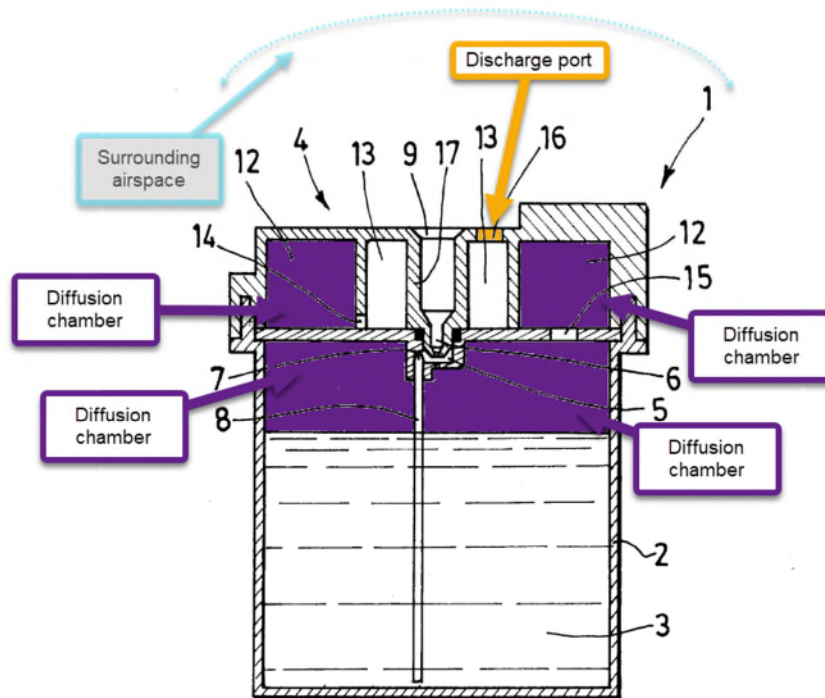
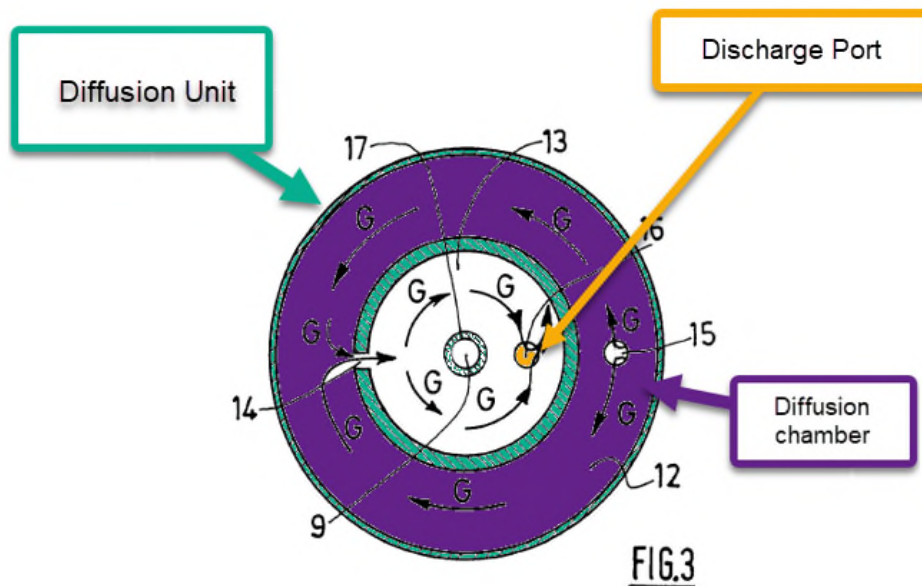


FIG.1

Ex-1016, FIG. 1

The droplet flow path is illustrated by the arrows G in FIG. 3 below. Ex-1016, 4:25. As shown, the droplets travel from outer enclosure 12 (*e.g.*, a portion of the diffusion chamber), to inner enclosure 13, through outlet 16 (*e.g.*, discharge port) and into ambient air. Thus, Goubet teaches a discharge port (*e.g.*, outlet 16) disposed in fluid communication between said diffusion chamber (*e.g.*, annotated in purple) and the surrounding airspace. *Id.*



Ex-1016, FIG. 3

1[D] a diffusion assembly disposed in an operative engagement with said diffusion unit,

In the '918 Patent, the diffusion assembly 200 is described as “compris[ing] an air inlet 210 and an atomizer assembly.” Ex-1001, 5:15-16. Goubet teaches a corresponding structure. Specifically, Goubet recites “[c]ompressed air is supplied by a compressor, not shown, and penetrates the diffuser head 4 via an air inlet channel 9, connected to said diffusion chamber 5.” Thus, Goubet teaches an air inlet in the form of air inlet channel 9. Ex-1016, 4:15-16.

Goubet further recites essential oil 3 is drawn into the diffusion chamber through the upper end of the dip tube 8. Air and essential oil are mixed within the diffusion chamber 5 and a flow of oil droplets is created. Ex-1016, 4:19-22. A POSITA would appreciate that mixing liquid with compressed air describes an

atomization process. Ex-1002, ¶¶136-140; *see also* Ex-1016, 5:16 (referring to the droplets as “highly atomized oil mist”). Therefore, Goubet teaches an atomizer assembly (*e.g.*, the assembly of components that atomize oil 3). Goubet also teaches a diffusion assembly (*e.g.*, the combination of air inlet channel 9 and the atomizer assembly (*e.g.*, the assembly of components that atomize liquid)) as depicted in FIGS. 1 and 2 below. Ex-1002, ¶¶136-140.

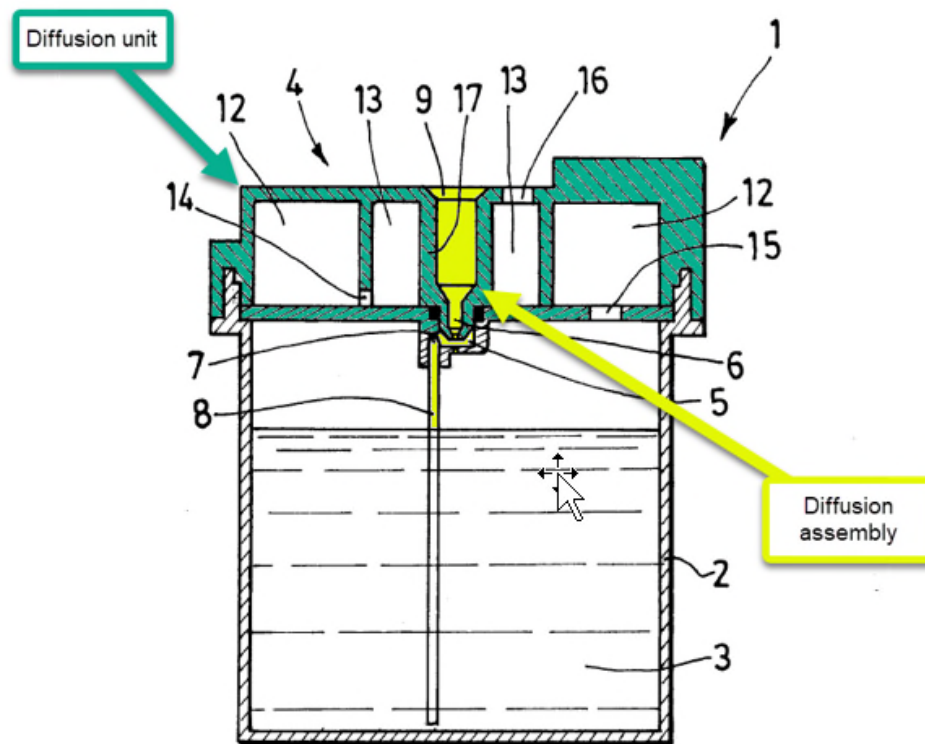
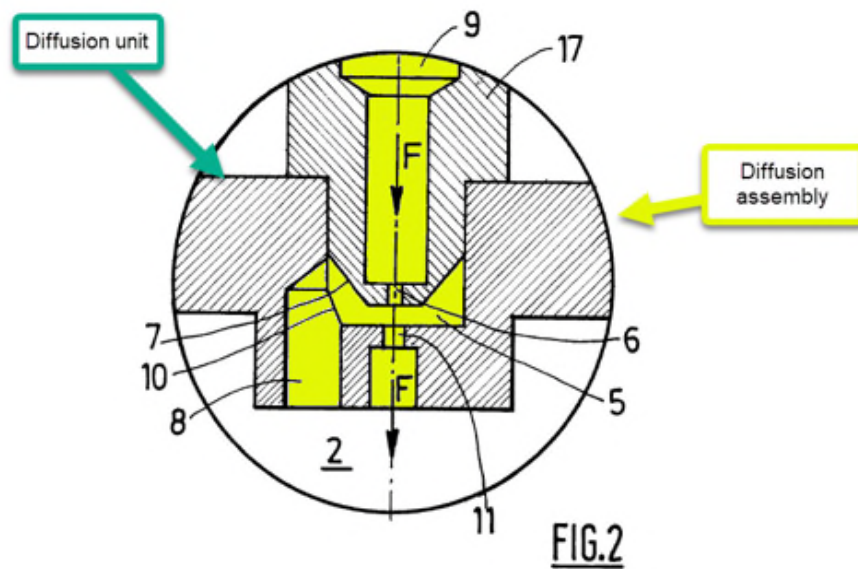


FIG.1

Ex-1016, FIG. 1

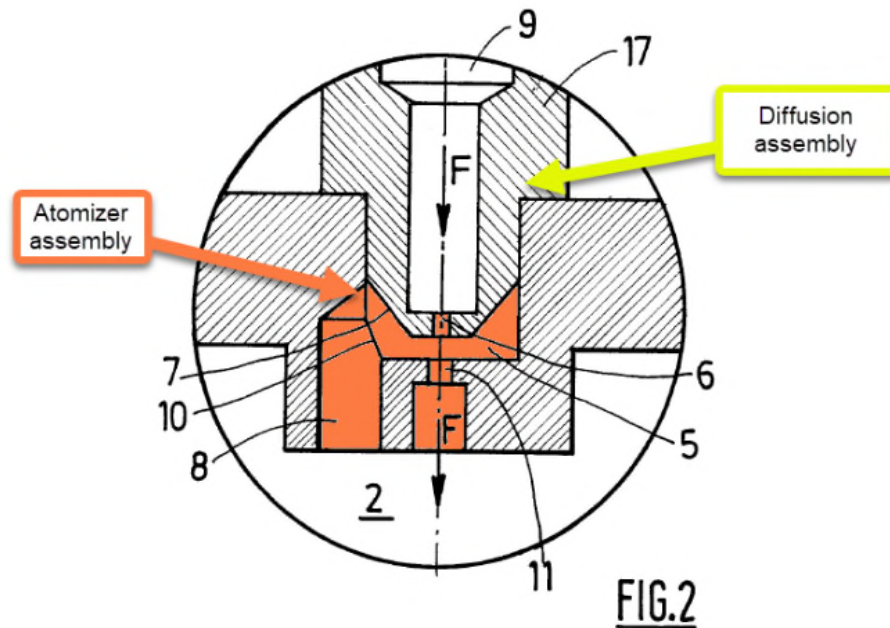


Ex-1016, FIG. 2

As illustrated in FIG. 1, the diffusion assembly of Goubet is disposed within the wall 17 of diffuser head 4, and therefore, disposed in operative engagement with the diffusion unit. Goubet additionally recites “[u]nder the effect of the compressed air pressure, the droplets leaving the diffusion chamber 5 are pushed towards the inside of the reservoir 2 and then towards the inlet 15 of the outer enclosure 12, into which they emerge.” Ex-1016, 4:26-28. As a result, Goubet teaches that the diffusion assembly (*e.g.*, the combination of air inlet channel 9 and the assembly of components that atomize oil 3) is in operative engagement with said diffusion unit, and specifically the diffusion chamber (*e.g.*, shaded purple) thereof. Ex-1002, ¶¶136-140.

1[E] wherein said diffusion assembly comprises an atomizer assembly,

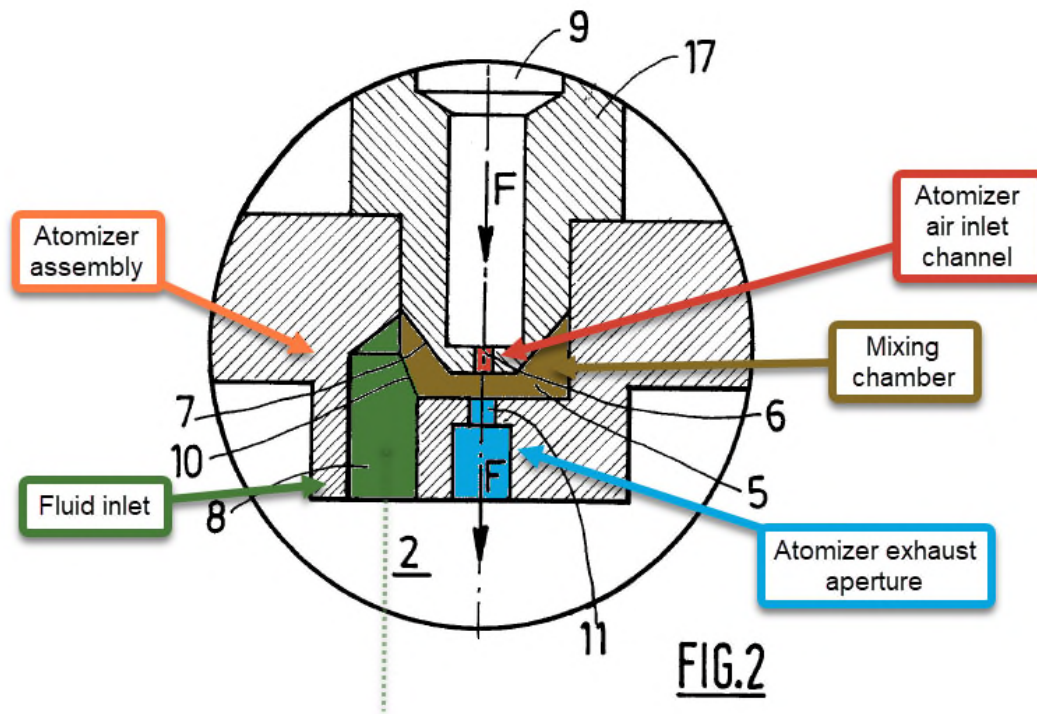
Goubet teaches a diffusion assembly including an atomizer assembly as previously demonstrated in limitation 1[D]. The atomizer assembly is annotated in FIG. 2 below.



Ex-1016, FIG. 2

The components of Goubet's atomizer assembly are detailed further and annotated in another FIG. 2 below. Specifically, Goubet's atomizer assembly includes a diffusion chamber 5, a compressed air inlet 6, a venturi cone 7, and an upper end of a dip tube 8. Ex-1016, 3:31-4:2. In use, compressed air flows in the direction illustrated by arrow F in FIG. 2, and more specifically from the compressor (not shown), through air inlet channel 9 to compressed air inlet 6, and then into

diffusion chamber 5. *Id.*, 4:15-18. Accordingly, the atomizer assembly of Goubet includes an atomizer air inlet channel (*e.g.*, compressed air inlet 6).



Ex-1016, FIG. 2

Goubet further teaches, “[w]hen the compressed air flows into the diffusion chamber 5, the essential oil 3 is drawn into the diffusion chamber 5 by the vacuum [force] . . . through the upper end 10 of the dip tube 8.” *Id.*, 4:19-21. The atomizer assembly of Goubet thus includes a fluid inlet (*e.g.*, the upper end of the dip tube 8).

Goubet goes on to recite, “[a]ir and essential oil are mixed within the diffusion chamber 5 and a flow of oil droplets is created.” *Id.*, 4:21-22; *Id.*, 5:15-16 (creating atomized oil mist). Goubet’s atomizer assembly therefore includes a mixing

chamber (*e.g.*, diffusion chamber 5). Afterwards, the flow of “oil droplets is then carried along by the compressed air and exits the diffusion chamber 5 through an outlet 11 towards the inside of the reservoir 2.” *Id.*, 4:23:24. The atomizer assembly thus also includes an atomizer exhaust aperture (*e.g.*, outlet 11).

Therefore, Goubet teaches an atomizer assembly having each of the components described in the ‘918 Patent, namely an atomizer air inlet channel, a fluid inlet, a mixing chamber, and an atomizer exhaust aperture. Ex-1002, ¶¶141-146.

1[F] said diffusion assembly is disposed between said upper chamber and said lower chamber,

The atomizer assembly discussed above in limitation 1[E] of this Ground 1, is illustrated in orange, in FIG. 1 (below). As depicted, the atomizer assembly is disposed between said upper chamber and said lower. In this regard, after liquid is atomized in the diffusion chamber 5, the droplets “are pushed towards the inside of the reservoir 2 and then towards the inlet 15 of the outer enclosure 12, into which they emerge.” Ex-1016, 4:26-28. This flow path is annotated in FIG. 1 below. Ex-1002, ¶¶147.

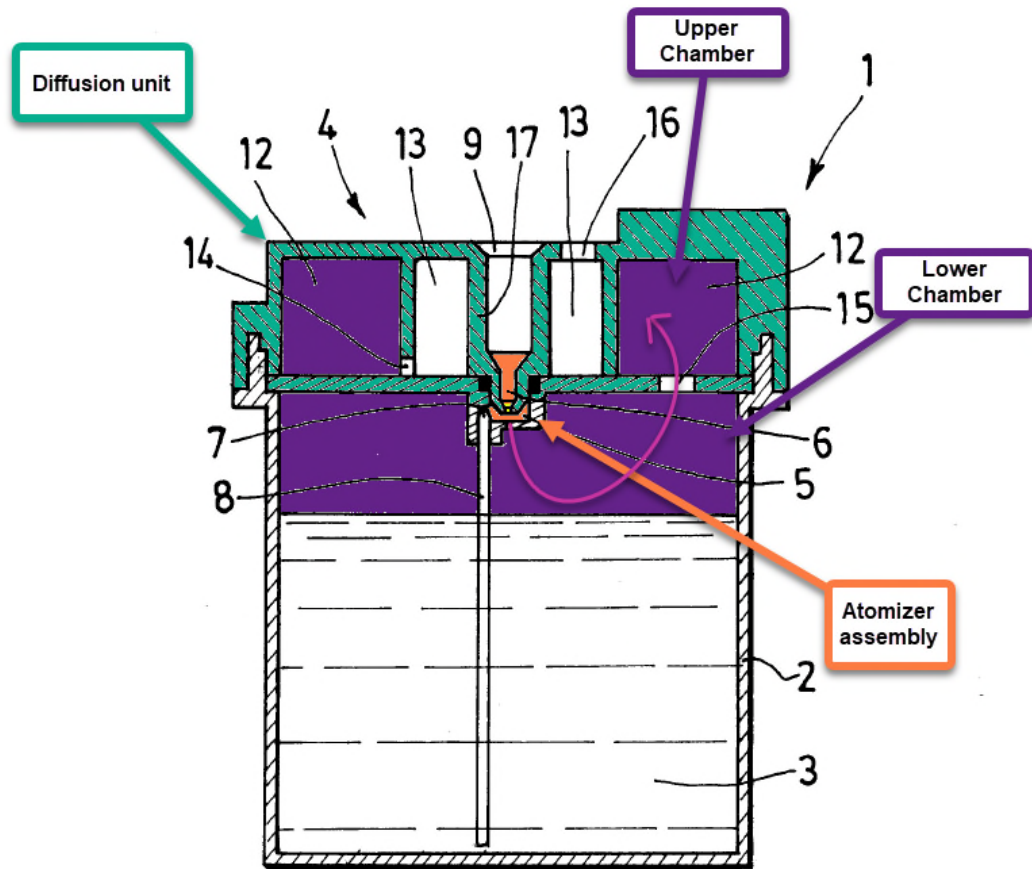


FIG.1

Ex-1016, FIG. 2

1[G] said atomizer assembly comprising an atomizer air inlet channel, a fluid inlet, a mixing chamber, and an atomizer exhaust aperture, and

As demonstrated in limitation 1[E] of this Ground 1, the atomizer assembly comprises air inlet channel (*e.g.*, compressed air inlet 6), a fluid inlet (*e.g.*, the upper end of dip tube 7), a mixing chamber (*e.g.*, diffusion chamber 5), and an atomizer

exhaust aperture (*e.g.*, outlet 11). Ex-1016, 4:15-24; Ex-1016; FIG. 2. Ex-1002, ¶¶148.

1[H] said atomizer air inlet channel interconnected to the compressed air source and

As demonstrated in limitation 1[E] of this Ground 1, said atomizer air inlet channel (*e.g.*, compressed air inlet 6) is interconnected to the compressed air source (*e.g.*, compressor (not shown)) (via air inlet channel). Ex-1016, 4:15-16; Ex-1016, FIG. 2; Ex-1002, ¶149.

1[I] said fluid inlet disposed in fluid communication with the operative fluid in the container,

As demonstrated in limitation 1[E] of this Ground 1, said fluid inlet (*e.g.*, the upper end of dip tube 7) is disposed in fluid communication with the operative fluid in the container (*e.g.*, reservoir 2) (via the lower end of dip tube 7). Ex-1016, 4:1-2; Ex-1016, FIG. 2; Ex-1002, ¶150.

1[J] wherein the compressed air and the operative fluid are mixed together in said mixing chamber to form the fluid dispersion.

As demonstrated in limitation 1[E] of this Ground 1, the compressed air and the operative fluid are mixed together in said mixing chamber (*e.g.*, diffusion chamber 5). *Id.*, 4:21-22 (“and a flow of oil droplets is created.”).

Despite stipulating to the meaning of “fluid dispersion,” PO construes this term differently depending on whether the “fluid dispersion” is within the “mixing

chamber” or whether the “fluid dispersion” is within the “diffusion chamber.” Ex-1018, Exhibit B. Particularly, PO has construed the term “diffusion chamber” to mean “a region that is structured to facilitate the formation of the fluid dispersion (*e.g.*, substantially uniform droplets) prior to discharge.” *Id.* In contrast, PO has construed the term “mixing chamber” to mean, “a region where the operative fluid is combined with compressed air.” *Id.* Put differently, when the term fluid dispersion is claimed as being *within* the mixing chamber, as is the case in limitation 1[J], PO construes the term to mean atomized droplets, but the atomized droplets need not include “a plurality of substantially uniform droplets.”⁹ Ex-1002, ¶¶151-153. As demonstrated above, Goubet teaches that within the mixing chamber (*e.g.*, diffusion chamber 5), the operative fluid is atomized by compressed air. *Id.*, ¶¶151-153.

2) Claim 3

The fluid dispersion assembly as recited in claim 1 wherein said atomizer exhaust aperture is disposed in a communicating relation between said mixing chamber and said lower chamber to facilitate transfer of the fluid dispersion therebetween.

Goubet teaches “[u]nder the effect of compressed air pressure, the droplets leaving the diffusion chamber 5 are pushed towards the inside of the reservoir 2 and then towards the inlet of the outer enclosure, into which they emerge.” Ex-1016, 26-

⁹ PO’s construction of the term “fluid dispersion,” as used in limitation 1[J], is equally applicable to the same limitation in Grounds 2-4. For brevity, this construction is only discussed once in Ground 1.

28. This flow path is annotated in FIG. 1 below. Therefore, Goubet teaches said atomizer exhaust aperture (e.g., outlet 11 though which droplets exit the diffusion chamber 5) is disposed in a communicating relation between said mixing chamber and said lower chamber (e.g., shaded purple underneath diffuser head 4) to facilitate transfer of the fluid dispersion therebetween. Ex-1002, ¶154-155.

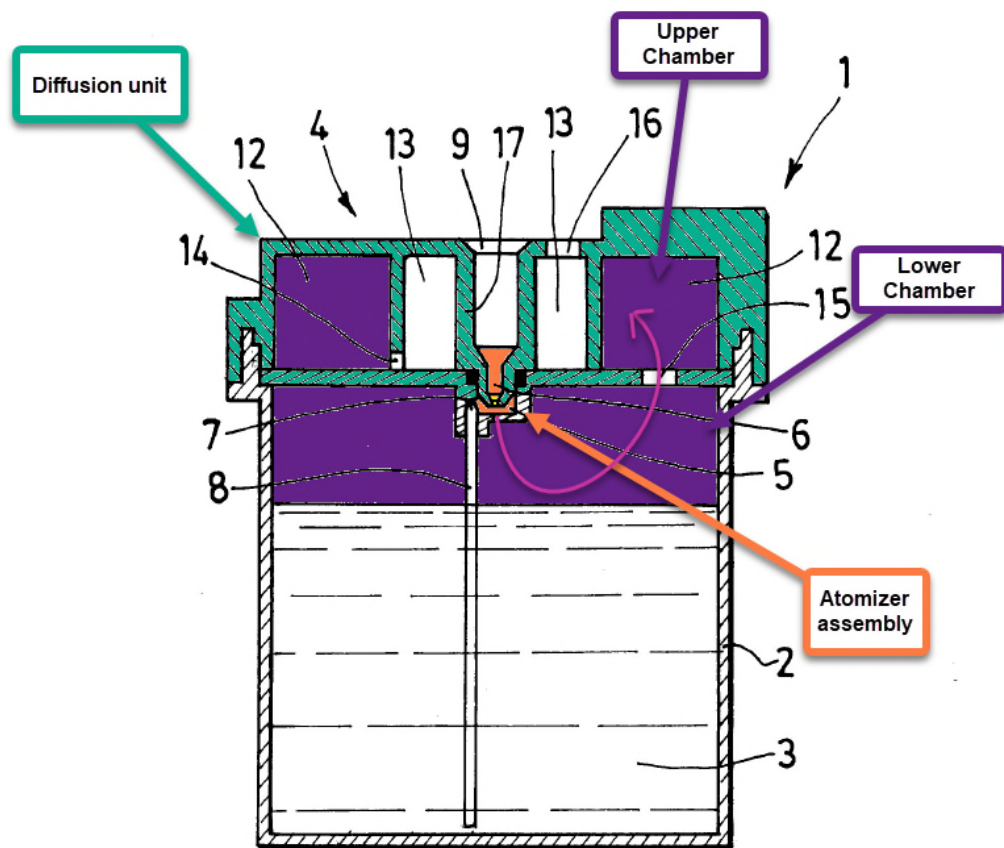


FIG.1

Ex-1016, FIG. 2

3) Claim 4

The fluid dispersion assembly as recited in claim 1 wherein said diffusion chamber facilitates formation of the fluid dispersion prior to discharge of the fluid dispersion from said diffusion chamber through said discharge port and into the surrounding airspace.

As demonstrated above, the diffuser head 4 of Goubet includes an outer enclosure 12 and an inner enclosure 13 forming a diffusion chamber that breaks oil droplets into microdroplets prior to discharging the microdroplets through outlet 16 and into the surrounding airspace. Ex-1016, 4:3-11.

Although Goubet does not explicitly teach that the microdroplets are “substantially uniform” in diameter, a POSITA would appreciate that Goubet at least suggests this limitation. First, when discussing known essential oil diffusers, Goubet submits that “compressed air generally arrives in the diffuser head rather abruptly, with the result that a large quantity of oil droplets is rapidly diffused into the ambient atmosphere ... with no real control over this diffusion. Furthermore, such diffusion is also noisy.” Ex-1016, 1:10-13. Goubet goes on to teach, “such diffusion may be felt as harsh by those present and is detrimental to establishing a refreshing, relaxing atmosphere.” Ex-1016, 1:14-15. To remedy this problem, the diffuser of Goubet includes vaporization means defining a circular and very particular “path, allowing [the droplet] size *to be reduced as much as possible*” before the microdroplets are “silently diffused” into the ambient air (*emphasis added*). See Ex-1016, 5:12-16.

The microdroplets that have been “reduced [in size] as much as possible” within the confines of Goubet’s structure meet the “fluid dispersion” limitation. Ex-1002, ¶¶156-160. A POSITA would appreciate that the circular shape of the baffled path will continually separate the droplets into increasingly smaller and thus more uniform droplets. *Id.* More particularly, only droplets of a particular size (and smaller) will be able to follow the air flow to navigate each additional turn without accumulating on surface of one of the walls. *Id.* Each turn will continually filter out droplets over a certain size, such that only smaller and more substantially uniform droplets of a particular size will continue to flow along the path. *Id.* As a result, the dual enclosure and circular flow path of Goubet at least suggest that the droplets are divided into substantially uniform microdroplets by the time the microdroplets reach and pass through outlet 16, thereby meeting the limitation “fluid dispersion”. *Id.*

If PO argues that the resulting atomized droplets do not meet the “fluid dispersion” limitation, it would have been obvious to modify 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. *Id.*, ¶80-102. Goubet’s objective of reducing droplet size as much as possible would have motivated a POSITA to add additional enclosures to the dual enclosure design. Ex-1016, 5:13-16; 2:16-18 (reciting “said vaporization means comprise at least two concentric

circular enclosures” and thus suggesting additional circular enclosures were already contemplated). A POSITA would appreciate that additional enclosures would result in further atomization and thus smaller, and more uniform droplets. *Id.*, ¶¶80-102. A POSITA would have had a reasonable expectation of success in adding additional enclosures because the combination would not require undue experimentation or modification of the existing components and because a further enclosure would not introduce any incompatibilities with Goubet’s existing design. Ex-1002, ¶¶156-160. Goubet thus renders obvious claim 4 of the ‘918 Patent.

4) Claim 5

There are no material differences between claim limitations 1[PRE]-1[F] and claim 5 of the ‘918 Patent. Appendix (*compare* claim limitations 1[PRE]-1[F], *with* claim 5). Thus, for the same reasons discussed in this Ground 1 with respect to claim limitations 1[PRE]-1[F], Goubet discloses or renders obvious all the limitations of claim 5. *See supra* Claim 1, limitations 1[PRE]-1[F].

5) Claim 6

The fluid dispersion assembly as recited in claim 5 wherein said atomizer assembly comprising an atomizer air inlet channel, a fluid inlet, a mixing chamber, and an atomizer exhaust aperture.

There are no material differences between claim limitation 1[G] and claim 6 of the ‘918 Patent. Appendix (*compare* claim limitation 1[G], *with* claim 6). Thus, for the same reasons discussed in this Ground 1 with respect to claim limitation 1[G],

Goubet discloses or renders obvious all the limitations of claim 6. *See supra* Claim 1, limitations 1[F].

6) Claim 7

The fluid dispersion assembly as recited in claim 6 wherein said atomizer air inlet channel is interconnected to the compressed air source and said fluid inlet disposed in fluid communication with the operative fluid in the container, wherein the compressed air and the operative fluid are mixed together in said mixing chamber to form the fluid dispersion.

There are no material differences between claim limitations 1[H]-1[J] and claim 7 of the '918 Patent. Appendix (*compare* claim limitations 1[H]-1[J], *with* claim 7). Thus, for the same reasons discussed in this Ground 1 with respect to claim limitations 1[H]-1[J], Goubet discloses or renders obvious all the limitations of claim 7. *See supra* Claim 1, limitations 1[H]-1[J].

7) Claim 8

The fluid dispersion assembly as recited in claim 7 wherein said diffusion chamber facilitates formation of the fluid dispersion prior to discharge of the fluid dispersion from said diffusion chamber through said discharge port and into the surrounding airspace.

There are no material differences between claim 4 and claim 8 of the '918 Patent. Appendix (*compare* claim 4, *with* claim 8). Thus, for the same reasons discussed in this Ground 1 with respect to claim 4, Goubet discloses or renders obvious all the limitations of claim 8. *See supra* Claim 4.

C. Ground 2: Claims 1 and 3-8 are Unpatentable Under 35 U.S.C. §103 as Obvious Over Goubet in view of Kaiser

As discussed in Ground 1, Goubet alone renders obvious claims 1 and 3-8. As part of that analysis, Petitioner noted that Goubet discloses a diffusion unit (*e.g.*, diffuser head 4) that generates and discharges particularly fine microdroplets to improve control over the diffusion, to reduce the harshness of the aroma, and to quietly disperse the essential oil into the air. Ex-1016, 2:6-8. However, Goubet does not explicitly disclose that its microdroplets are “substantially uniform” in diameter. For this reason, in Ground 2, and, in addressing the “fluid dispersion” limitation, where PO’s construction requires “substantially uniform droplets,” namely, limitations set forth in 1[PRE]), Claim 3, Claim 4, limitation 5[PRE], and Claim 8, Petitioner also relies on Kaiser, which demonstrates that it was well known in the field at the time of the invention that droplets of greater uniformity result in uniform droplet evaporation. Ex-1014, pg. 43 (“critical to uniform evaporation and burning is a good control of the size distribution of the resulting aerosol”). *Id.*

If the PTAB concludes that Goubet’s diffuser head 4 does not teach a ‘fluid dispersion’ (*e.g.*, substantially uniform droplets) as presently configured, a POSITA would have been motivated to modify Goubet to include additional enclosures to further reduce the size (diameter) of the droplets—for the reasons discussed above with Ground 1—and to improve droplet uniformity, which will in turn create a more

uniform, and less harsh, scent as the oil droplets evaporate in the surrounding airspace. EX-1002, ¶167.

A POSITA would modify Goubet’s diffuser head to include additional enclosures to further reduce the size of the microdroplets without undue experimentation for the same reasons set forth in Ground 1 above. Ex-1002, ¶168. Furthermore, a POSITA would have reasonably expected such modification to result in the discharge of smaller droplets with greater uniformity from diffuser, which would exhibit improved dispersion and evaporation (*e.g.*, aroma) properties. See *Railroad Supply Co v. Elyria Iron & Steel Co*, 244 U.S. 285, 292 (1917) (“the mere carrying forward of the original thought, a change only in form, proportions, or degree, doing the same thing in the same way, by substantially the same means, with better results, is not such an invention as will sustain a patent”) (internal quotation marks omitted).

Other Limitations of Claims 1 and 5

Limitations 1[PRE]–1[J] and 5[PRE]–5[F] are taught by Goubet for the reasons previously provided in Ground 1 as such limitations are unrelated to the discharge of “fluid dispersion” as it relates to “substantially uniform droplets.” See Section X(B)(1) and (4); EX-1002, ¶¶121-154 and 162.

Claims 6 and 7

Claims 6 and 7 are taught by Goubet for the reasons previously provided in Ground 1 as such limitations are also unrelated to the discharge of fluid dispersion as it relates to “substantially uniform droplets”. See Section X(B)(5) and (6); Ex-1002, ¶¶163-165.

Claims 1 and 3-8 are thus rendered obvious under 35 U.S.C. §103 over Goubet in view of Kaiser.

D. Ground 3: Claims 1 and 3-8 are Unpatentable Under 35 U.S.C. §103 as Obvious Over Gao-2

1) Claim 1

1[PRE] A fluid dispersion assembly operatively engages a container of an operative fluid and a compressed air source and generates and discharges a fluid dispersion into a surrounding airspace, said fluid dispersion assembly comprising:

To the extent the preamble is limiting, it is taught by Gao-2, which is titled “aroma diffuser” and directed to a diffuser for generating “a fragrant mist.” Ex-1042, ¶[0027]. A cross-section of the diffuser is illustrated in FIG. 2 below. The diffuser includes a housing defining a first installation chamber 6 and a second installation chamber 7. *Id.* An “atomization device 3 is installed in the first installation chamber.” *Id.* The atomization device 3 is connected to an air pump 4, via a pipeline, which is “installed in the second installation chamber.” *Id.* The atomization device 3 is also “connected to an essential oil bottle 2, used to atomize [] essential oil . . . and discharge the fragrant mist . . . in the air.” *Id.* Thus, Gao-2 teaches a fluid dispersion

assembly (*e.g.*, atomization device 3) that operatively engages a container (*e.g.*, essential oil bottle 2) of operative fluid (*e.g.*, essential oil) and a compressed air source (*e.g.*, air pump 4) and generates and discharges a fluid dispersion (*e.g.*, fragrant mist mist) into a surrounding airspace). Ex-1002, ¶173.

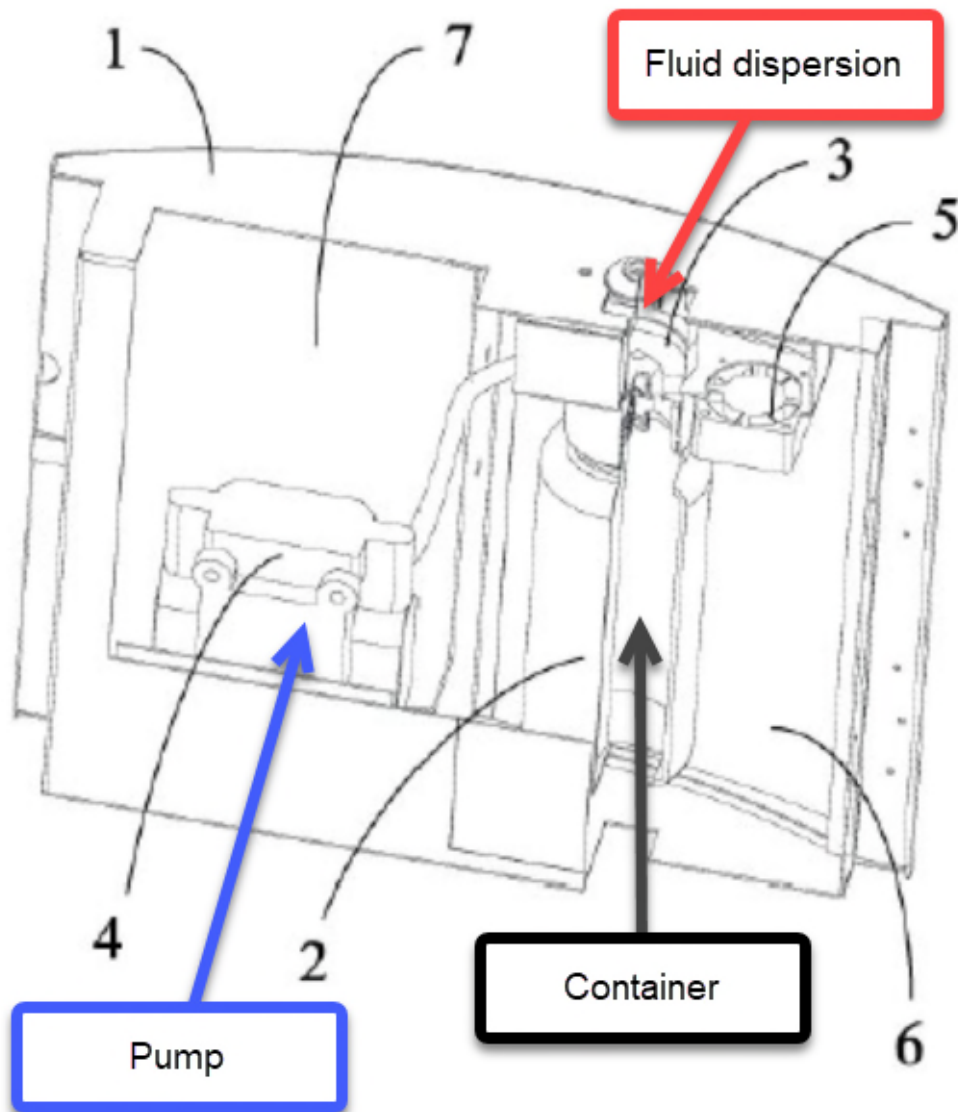
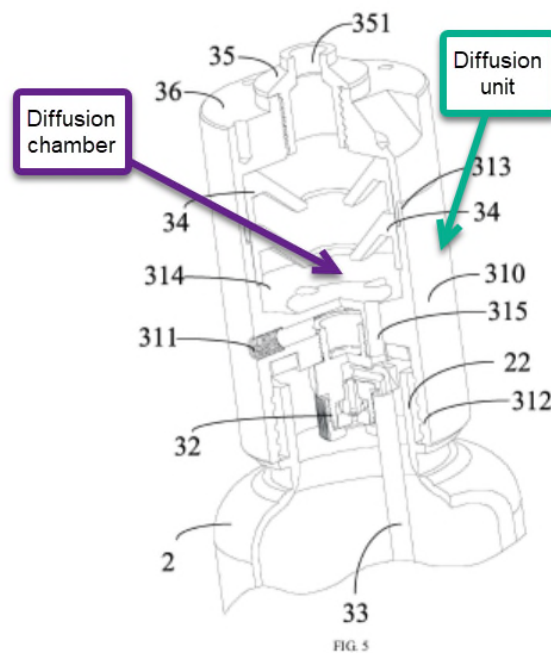


FIG. 2

Ex-1042, FIG. 2

1[A] a diffusion unit at least partially defining an enclosed diffusion chamber,

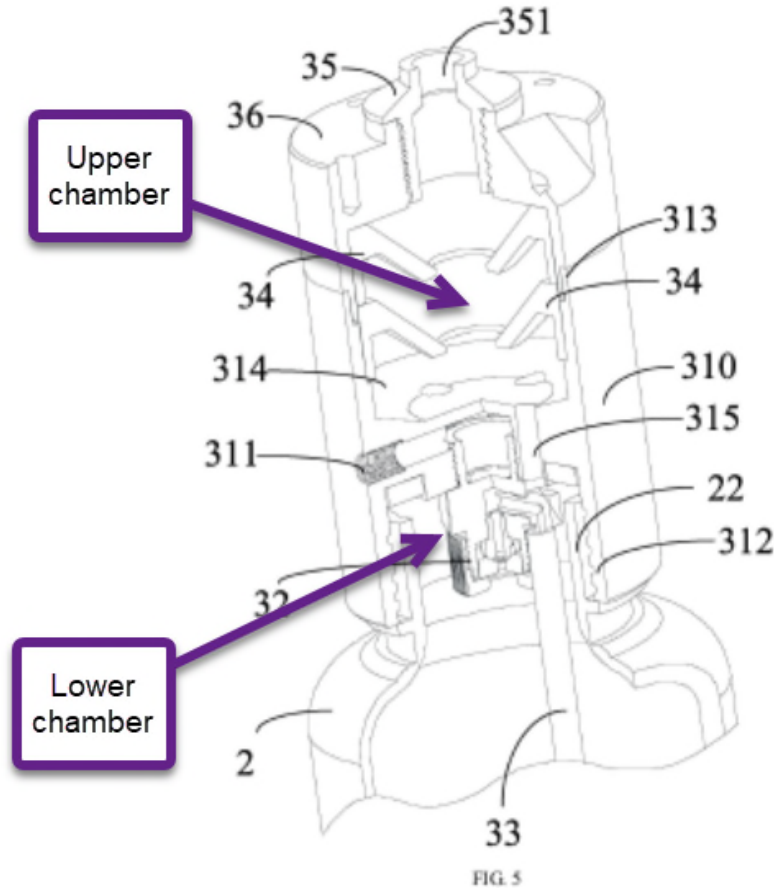
Atomization device 3 includes a cylindrical body 310 surrounding an atomization core 32 for atomizing essential oil. Ex-1042, ¶[0033]. A first connection portion 312, at a lower end of the cylindrical body 310, secures atomization device 3 to essential oil bottle 2. *Id.* As shown below in FIG. 5, an atomization head cover 36 is provided at an upper end of cylindrical body 310 and encloses the atomization core 32 within a chamber of the cylindrical body 310. *Id.* Therefore, Gao-2 teaches a diffusion unit (*e.g.*, cylindrical body 310) at least partially defining an enclosed diffusion chamber (*e.g.*, the chamber in which atomization core 32 is disposed). Ex-1002, ¶¶174-175.



Ex-1042, FIG. 5

1[B] wherein said diffusion chamber comprises an upper chamber and a lower chamber,

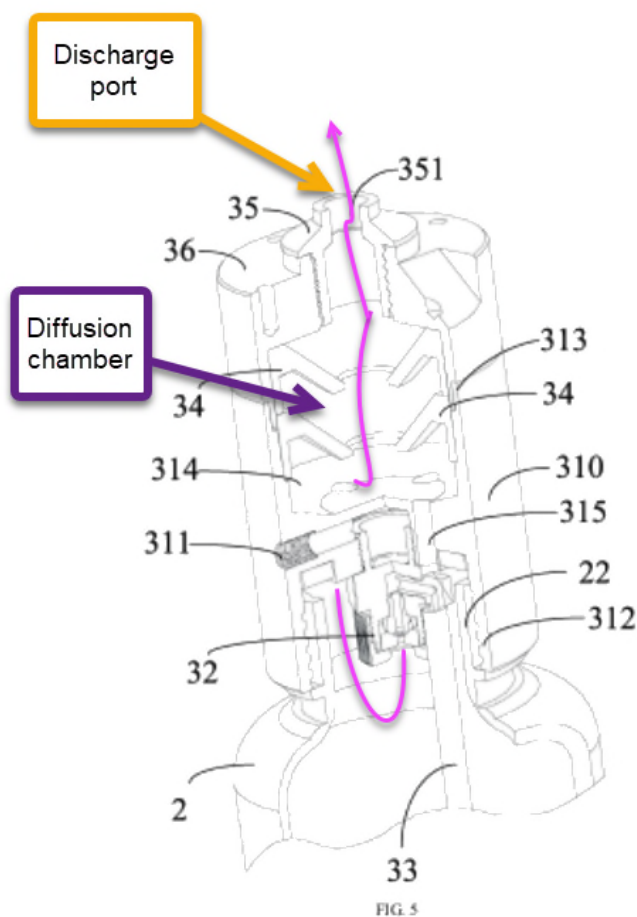
Atomization core 32 is secured to a partition plate 314, which divides the diffusion chamber into “an upper chamber” formed above the partition plate 314 and “a lower chamber” formed “below the partition plate.” Ex-1042, ¶¶[0031], [0032]. Thus, Gao-2 teaches the limitation said diffusion chamber comprises an upper chamber and a lower chamber. Ex-1002, ¶¶176-177.



Ex-1042, FIG. 5

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

Atomization device 3, and specifically atomization head cover 36, is provided with a mist outlet 351 through which mist is discharged into the air. Ex-1042, ¶[0034]. After liquid is atomized in atomization core, mist flows into the lower chamber, through mist passage holes 315 to the upper chamber, and then through noise reduction device 34, before exiting atomization device 3 through mist outlet 351. *Id.* This flow path is annotated by the pink arrow shown in FIG. 5 below. Thus, Gao-2 teaches a discharge port (*e.g.*, mist outlet 351) disposed in fluid communication between said diffusion chamber and the surrounding airspace. Ex-1002, ¶¶178-179.

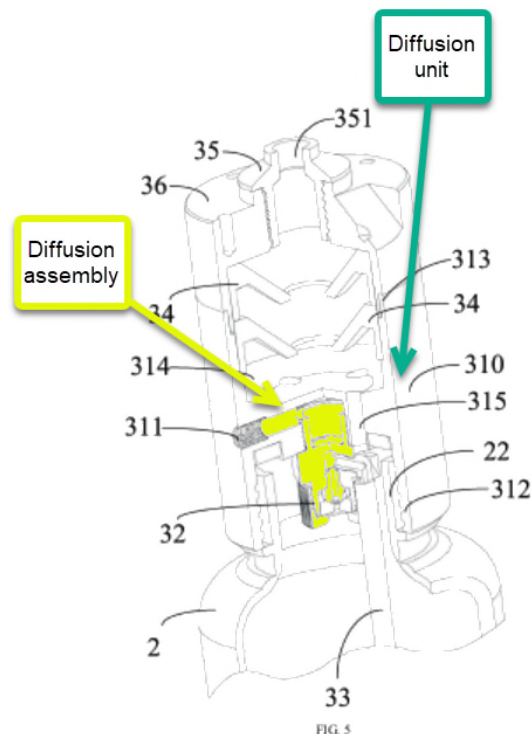


Ex-1042, FIG. 5

1[D] a diffusion assembly disposed in an operative engagement with said diffusion unit,

In the ‘918 Patent, the diffusion assembly 200 is described as “compris[ing] an air inlet 210 and an atomizer assembly.” Ex-1001, 5:15-16. Gao-2 teaches a corresponding structure. Specifically, Gao-2 recites “[t]he airflow generated by the air pump 4 enters the upper end of the atomization core [32] through the air inlet channel 311.” Ex-1042, ¶[0038]. Therefore, Gao-2 teaches an air inlet (e.g., air inlet

channel 311). Ex-1002, ¶¶180-182. The atomization core, as evident from its nomenclature, is designed to “effectively atomize essential oils” and meets the limitation an “atomizer assembly.” Ex-1042, ¶[0038]; Ex-1002, ¶¶180-182. As demonstrated in limitations 1[B] and 1[C], atomization core 32 is secured to cylindrical body 310 (*e.g.*, diffusion unit) via partition plate 314, and is designed to atomize mist into its chamber. Therefore, Gao-2 teaches a diffusion assembly (*e.g.*, the combination of air channel 311 and atomization core 32) disposed in an operative engagement with the diffusion unit (*e.g.*, cylindrical body 310) as shown below in FIG. 5. Ex-1002, ¶¶180-182.



Ex-1042, FIG. 5

1[E] wherein said diffusion assembly comprises an atomizer assembly,

Gao-2 teaches a diffusion assembly including an atomizer assembly (*e.g.*, atomization core 32) as demonstrated in above in limitation 1[D]. The components of Goa-2's atomization core 32 are detailed further and annotated below in FIG. 10 (depicting an assembled cross-sectional view of the atomization core). Ex-1042, ¶[0025].

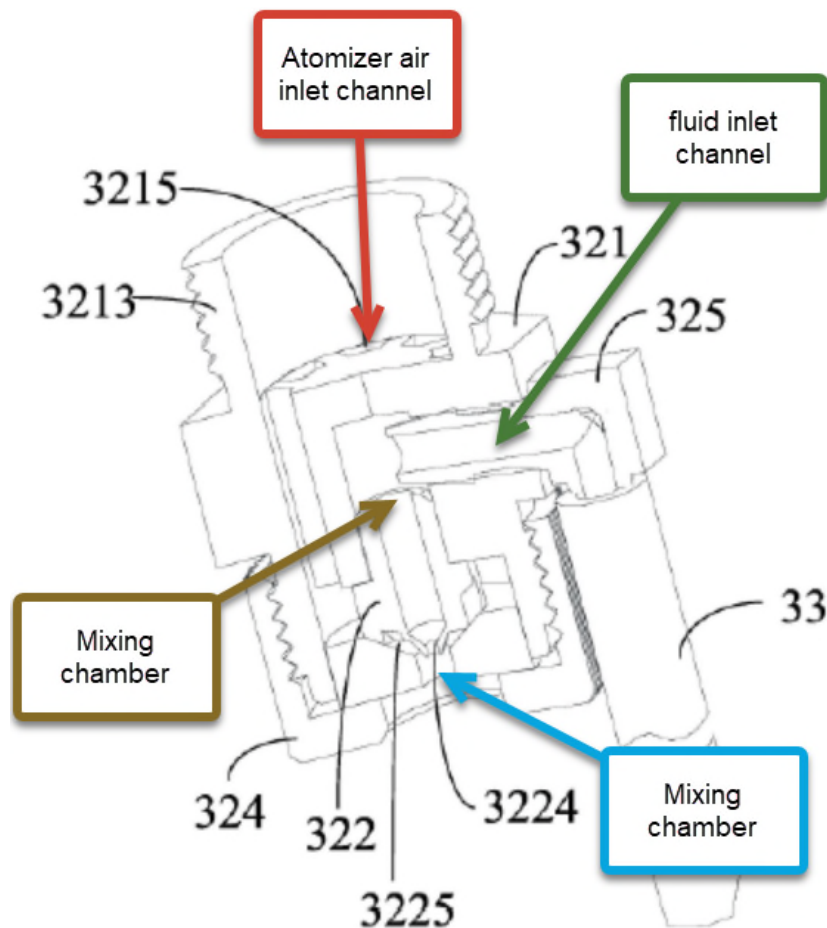


FIG. 10

Ex-1042, FIG. 10

Specifically, Gao-2's atomizer assembly (*e.g.*, atomization core 32) includes an atomization rotating core 322 attached to a core base 321. Ex-1042, ¶[0038]; *Id.*, FIG. 10. Atomization rotating core 322 defines a chamber and is provided underneath a mounting plate 3214. Ex-1042, ¶[0038]; *Id.*, FIG. 10. A hole 3224 is provided at an end of atomization rotating core 322 that is disposed within a spray outlet 3231 of atomization core cap 323. *Id.*, ¶[0036].

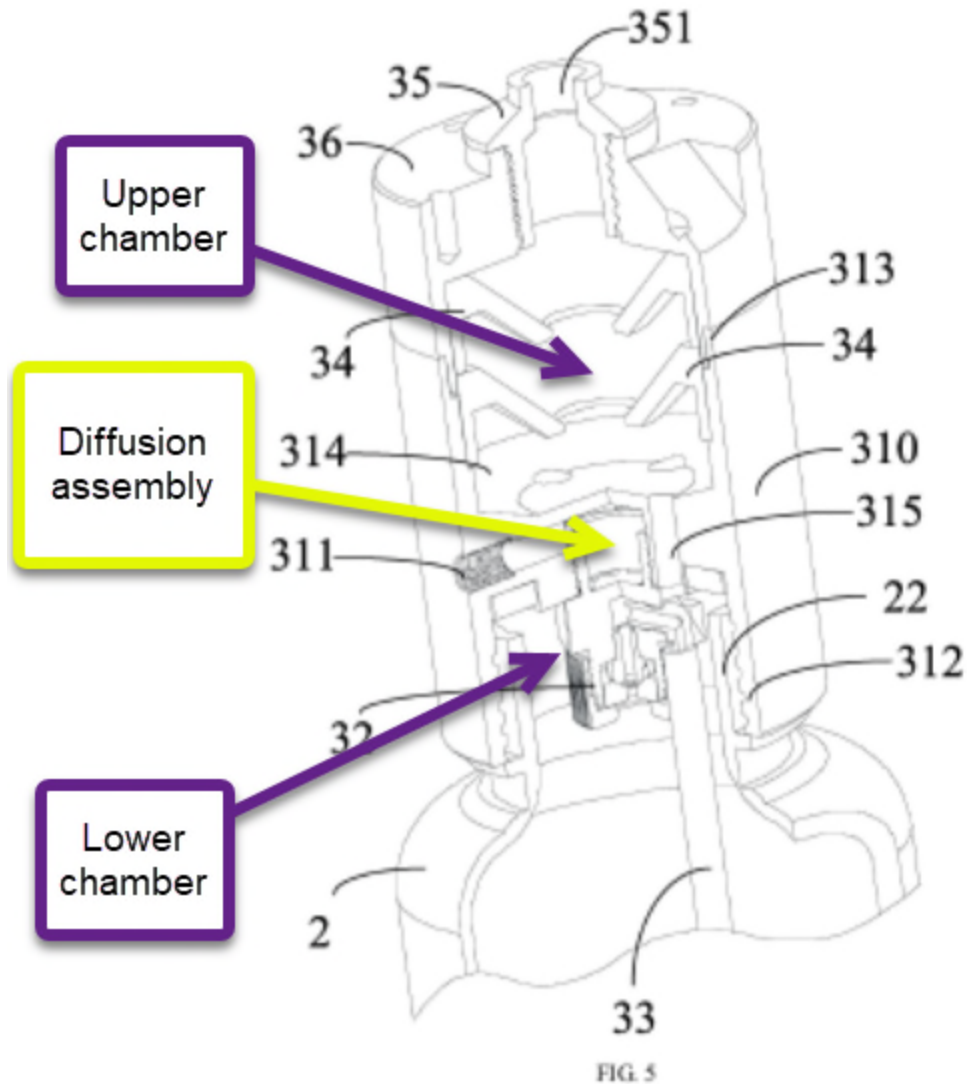
“[A]irflow generated by the air pump 4 enters the upper end of the atomization core base 321 through the air inlet channel 311, then passes through the vent hole(s) 3215” and into rotating core 322. Ex-1042, ¶[0038]. Atomization core 32 also includes a “liquid suction tube 325 connect[ing] the atomization core base 321 and the liquid suction tube 33.” *Id.*, ¶[0036].

When the aroma diffuser is in operation, and air pump 4 generates an airflow, the “airflow sequentially passes through the pipeline [connecting the pump to the atomization device 3], the air inlet channel 311, [and] the vent hole(s) 3215.” *Id.*, ¶[0040]. Gao-2 recites, “this creates a negative pressure . . . draw[ing] the essential oil from the essential oil bottle 2 through the liquid suction tube 33” and into atomization rotating core 322 where “[t]he essential oil then mixes with the airflow and is atomized at the outlet of the [] hole 3224, before being sprayed out from the spray outlet 3231.” *Id.* Therefore, Gao-2 teaches an atomizer assembly having each of the components described in the '918 Patent, namely an atomizer air inlet channel

(*e.g.*, vent hole(s) 3215), a fluid inlet (*e.g.*, liquid suction tube 325), a mixing chamber (*e.g.*, chamber within rotating core 322), and an atomizer exhaust aperture (*e.g.*, spray outlet 3231). Ex-1002, ¶¶183-187.

1[F] said diffusion assembly is disposed between said upper chamber and said lower chamber,

As demonstrated above in limitation 1[B] of this Ground 3, atomization core 32 (*e.g.*, a portion of the diffusion assembly) is secured to a partition plate 314, which divides the diffusion chamber into “an upper chamber” formed above the partition plate 314 and “a lower chamber” formed “below the partition plate.” Ex-1042, ¶¶[0031], [0032]. Thus, Gao-2 teaches the limitation said diffusion assembly disposed between said upper chamber and said lower chamber. Ex-1002, ¶¶188-189.



Ex-1042, FIG. 5

1[G] said atomizer assembly comprising an atomizer air inlet channel, a fluid inlet, a mixing chamber, and an atomizer exhaust aperture, and

As demonstrated in limitation 1[E] of this Ground 3, the atomizer assembly comprises an atomizer air inlet channel (*e.g.*, vent hole(s) 3215), a fluid inlet (*e.g.*,

liquid suction tube 325), a mixing chamber (*e.g.*, chamber within core base 322), and an atomizer exhaust aperture (*e.g.*, spray outlet 3231). Ex-1002, ¶¶190-191.

1[H] said atomizer air inlet channel interconnected to the compressed air source and

As demonstrated in limitation 1[E] of this Ground 3, said atomizer air inlet channel (*e.g.*, vent holes(s) 3215) is interconnected to the compressed air source (*e.g.*, pump 4). Ex-1002, ¶192.

1[I] said fluid inlet disposed in fluid communication with the operative fluid in the container,

As demonstrated in limitation 1[E] of this Ground 3, said fluid inlet (*e.g.*, liquid suction tube 325) is disposed in fluid communication with the operative fluid in the container (*e.g.*, essential oil bottle 2). Ex-1002, ¶193.

1[J] wherein the compressed air and the operative fluid are mixed together in said mixing chamber to form the fluid dispersion.

As demonstrated in limitation 1[E] of this Ground 3, the compressed air and the operative fluid are mixed together in said mixing chamber (*e.g.*, chamber within core base 322).

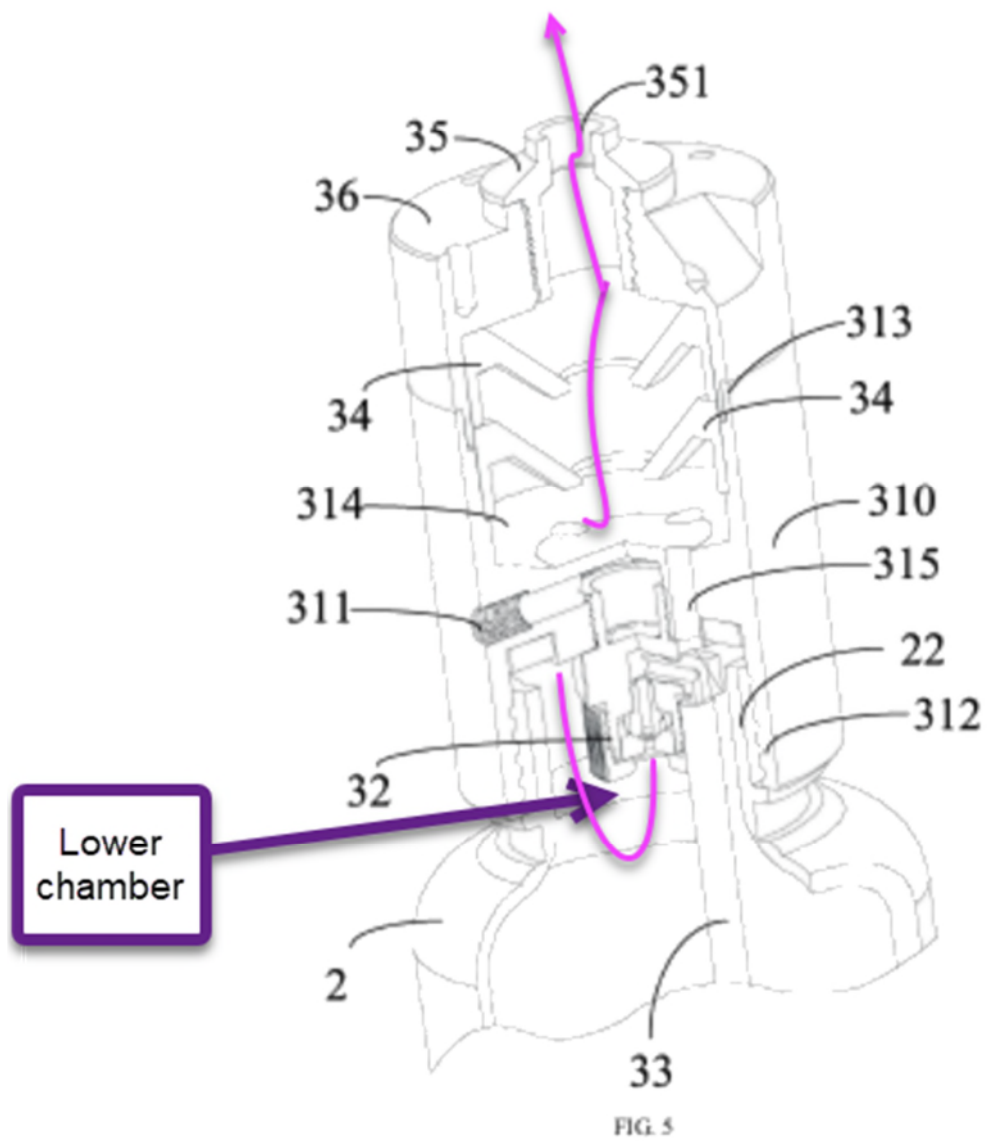
Despite stipulating to the meaning of “fluid dispersion,” PO construes this term differently depending on whether the “fluid dispersion” is within the “mixing chamber” or whether the “fluid dispersion” is within the “diffusion chamber.” Ex-1018, Exhibit B. Particularly, PO has construed the term “diffusion chamber” to

mean “a region that is structured to facilitate the formation of the fluid dispersion (*e.g.*, substantially uniform droplets) prior to discharge.” *Id.* In contrast, PO has construed the term “mixing chamber” to mean, “a region where the operative fluid is combined with compressed air.” *Id.* Put differently, when the term fluid dispersion is claimed as being *within* the mixing chamber, as is the case in limitation 1[J], PO construes the term to mean atomized droplets, but the atomized droplets need not include “a plurality of substantially uniform droplets.” Ex-1002, ¶194-196. As demonstrated above, Gao-2 teaches that within the mixing chamber (*e.g.*, chamber within core base 322), the operative fluid is atomized by compressed air. *Id.*

2) Claim 3

The fluid dispersion assembly as recited in claim 1 wherein said atomizer exhaust aperture is disposed in a communicating relation between said mixing chamber and said lower chamber to facilitate transfer of the fluid dispersion therebetween.

As demonstrated in limitation 1[C] of this Ground 3, after liquid is atomized in atomization core 32, the atomized mist initially flows into the lower chamber, along the flow path annotated by the pink arrow in FIG. 5 below. Ex-1002, ¶197.



Ex-1042, FIG. 5

3) Claim 4

The fluid dispersion assembly as recited in claim 1 wherein said diffusion chamber facilitates formation of the fluid dispersion prior to discharge of the fluid dispersion from said diffusion chamber through said discharge port and into the surrounding airspace.

Although Gao-2 does not explicitly teach that mist consists of “substantially uniform droplets” (in diameter), a POSITA would appreciate that Gao-2 at least suggests this limitation. First, when discussing known essential oil diffusers, Gao-2 submits that it is a drawback that their perfume particles are relatively large. Ex-1042 ¶[0002]. To remedy this problem, the diffuser of Gao-2 includes a spray outlet 3231 that faces downward, and as a result, disperses coarse fragrant mist (*e.g.*, droplets) from the spray outlet 3231 downwards, directly back into the essential oil bottle. *Id.*, ¶[0030]. In this regard, “only the fine fragrant mist disperses outward.” Furthermore, the upper chamber of cylindrical body 310 includes one or more “noise reduction device(s)” that project into the flow path. *Id.*, ¶[0032]; *Id.*, FIG. 5.

A POSITA would appreciate that these noise reduction devices are “baffles,” and as the mist travels along its path, the baffles will separate the droplets into increasingly smaller and thus more uniform droplets. Ex-1002, ¶¶199-202. More particularly, only droplets of a particular size (and smaller) will be able navigate around the noise reduction devices without accumulating on a surface of one of the devices. *Id.*. Each turn will continually filter out droplets over a certain size, such that only smaller and more substantially uniform droplets of a particular size will

continue to flow along the path. *Id.* As a result, Gao-2 at least suggest that the droplets are divided into substantially uniform microdroplets by the time the microdroplets reach and pass through mist outlet 351, thereby meeting the limitation “fluid dispersion.” *Id.*

If PO argues that the resulting atomized droplets do not meet the “fluid dispersion” limitation, it would have been obvious to modify Gao-2 to include additional baffles 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. *Id.* Gao-2’s objective of reducing droplet size, and noise, would have motivated a POSITA to add additional noise reduction devices (*e.g.*, baffles). A POSITA would appreciate that additional baffles would result in further atomization and thus smaller, and more uniform droplets. *Id.* A POSITA would have had a reasonable expectation of success in adding additional baffles because the combination would not require undue experimentation or modification of the existing components and because further baffles would not introduce any incompatibilities with Gao-2’s existing design. *Id.* Gao-2 thus renders obvious claim 4 of the ‘918 Patent.

4) Claim 5

There are no material differences between claim limitations 1[PRE]-1[F] and claim 5 of the ‘918 Patent. Appendix (*compare* claim limitations 1[PRE]-1[F], *with*

claim 5). Thus, for the same reasons discussed in this Ground 3 with respect to claim limitations 1[PRE]-1[F], Gao-2 discloses or renders obvious all the limitations of claim 5. *See supra* Claim 1, limitations 1[PRE]-1[F]. Ex-1002, ¶203.

5) Claim 6

The fluid dispersion assembly as recited in claim 5 wherein said atomizer assembly comprising an atomizer air inlet channel, a fluid inlet, a mixing chamber, and an atomizer exhaust aperture.

There are no material differences between claim limitation 1[G] and claim 6 of the '918 Patent. Appendix (*compare* claim limitation 1[G], *with* claim 6). Thus, for the same reasons discussed in this Ground 3 with respect to claim limitation 1[G], Gao-2 discloses or renders obvious all the limitations of claim 6. *See supra* Claim 1, limitations 1[F]. Ex-1002, ¶204.

6) Claim 7

The fluid dispersion assembly as recited in claim 6 wherein said atomizer air inlet channel is interconnected to the compressed air source and said fluid inlet disposed in fluid communication with the operative fluid in the container, wherein the compressed air and the operative fluid are mixed together in said mixing chamber to form the fluid dispersion.

There are no material differences between claim limitations 1[H]-1[J] and claim 7 of the '918 Patent. Appendix (*compare* claim limitations 1[H]-1[J], *with* claim 7). Thus, for the same reasons discussed in this Ground 3 with respect to claim limitations 1[H]-1[J], Goubet discloses or renders obvious all the limitations of claim 7. *See supra* Claim 1, limitations 1[H]-1[J]. Ex-1002, ¶205.

7) **Claim 8**

The fluid dispersion assembly as recited in claim 7 wherein said diffusion chamber facilitates formation of the fluid dispersion prior to discharge of the fluid dispersion from said diffusion chamber through said discharge port and into the surrounding airspace.

There are no material differences between claim 4 and claim 8 of the ‘918 Patent. Appendix (*compare* claim 4, *with* claim 8). Thus, for the same reasons discussed in this Ground 3 with respect to claim 4, Goubet discloses or renders obvious all the limitations of claim 8. *See supra* Claim 4. Ex-1002, ¶206.

E. Ground 4: Claims 1 and 3-8 are Unpatentable Under 35 U.S.C. §103 as Obvious Over Gao-2 in view of Goubet

As discussed in Ground 3, Gao-2 alone renders obvious claims 1 and 3-8. As part of that analysis, Petitioner noted that Gao-2 discloses a diffusion unit (*e.g.*, cylindrical body 310) that generates fine mist and quietly disperses the mist into the air. Ex-1042, ¶[0030], [0032]. However, Gao-2 does not explicitly disclose that its mist droplets are “substantially uniform” in diameter. For this reason, in Ground 4, and, in addressing the “fluid dispersion” limitation, where PO’s construction requires “substantially uniform droplets,” namely, the limitations set forth in limitation 1[PRE]), Claim 3, Claim 4, limitation 5[PRE], and Claim 8, Petitioner also relies on Goubet, which discloses a diffusion unit (*e.g.*, diffuser head 4) that generates and discharges particularly fine microdroplets to improve

control over the diffusion, to reduce the harshness of the aroma, and to quietly disperse the essential oil into the air. Ex-1016, 2:6-8.

When discussing known essential oil diffusers, Goubet submits that “compressed air generally arrives in the diffuser head rather abruptly, with the result that a large quantity of oil droplets is rapidly diffused into the ambient atmosphere ... with no real control over this diffusion.” Ex-1016, 1:10-13. Goubet goes on to teach, “such diffusion may be felt as harsh by those present and is detrimental to establishing a refreshing, relaxing atmosphere.” Ex-1016, 1:14-15. To remedy this problem, the diffuser of Goubet includes vaporization means defining a circular and very particular “path, allowing [the droplet] size *to be reduced as much as possible*” before the microdroplets are “silently diffused” into the ambient air (*emphasis added*). See Ex-1016, 5:12-16.

A POSITA would appreciate that the circular shape of the baffled path of Goubet will continually separate the droplets into increasingly smaller and thus more uniform droplets, in a similar manner to Gao-2’s ‘noise reduction’ baffles. More particularly, only droplets of a particular size (and smaller) will be able to follow the air flow to navigate each additional turn without accumulating on surface of one of the walls. Each turn will continually filter out droplets over a certain size, such that only smaller and more substantially uniform droplets of a particular size will continue to flow along the path. Ex-1002, ¶209.

In view of Goubet’s teachings, a POSITA would be motivated to further reduce the size of the droplets discharged by Gao-2’s atomizer to improve their dispersion and aromatic properties. Ex-1002, ¶210-211. First, both Gao-2 and Goubet at least acknowledge that it is advantageous to reduce droplet size. Ex-1043, ¶[0002]; Ex-1016, 5:12-16. Second, Gao-2 teaches “in other embodiments, the number of noise reduction devices 34 [baffles] can be one, two, or more. . . .” Ex-1043, ¶[0033]. Thus, a POSITA would have been motivated to modify the series of noise reduction devices 34 (*e.g.*, baffles) into a series of spiraling encloses, as taught by Goubet, to further reduce the size of the mist droplets that are discharged into the atmosphere, which, in turn, would also increase their uniformity. Ex-1002, ¶210-211.

The combination would thus be a simple substitution of one known element for another to achieve the same desired effect of improved atomization and noise reduction. Ex-1002, ¶214. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 401 (2007) (holding it is obvious to substitute one known element for another to obtain predictable results).

Other Limitations of Claims 1 and 5

Limitations 1[PRE]–1[J] and 5[PRE]–5[F] are taught by Gao-2 for the reasons previously provided in Ground 3 as such limitations are unrelated to the discharge

of “fluid dispersion” as it relates to “substantially uniform droplets.” See Section X(D)(1) and (4); EX-1002, ¶¶173-196 and 203.

Claims 6 and 7

Claims 6 and 7 are taught by Gao-2 for the reasons previously provided in Ground 3 as such limitations are also unrelated to the discharge of fluid dispersion as it relates to “substantially uniform droplets”. See Section X(D(5) and (6); Ex-1002, ¶¶204-205.

Claims 1 and 3-8 are thus rendered obvious under 35 U.S.C. §103 over Gao-2 in view of Goubet.

XI. DISCRETIONARY DENIAL IS NOT APPROPRIATE

A. 35 U.S.C. § 325(d)

Under § 325(d), the Board uses the following two-part framework to determine whether to exercise its discretion and deny institution of review: (1) whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office; and (2) if either condition of first part of the framework is satisfied, whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims. *Advanced Bionic v. Med-EL Elektromedizinische Geräte*, IPR2019-01469, 2020 WL 740292, at *3-4 (P.T.A.B. Feb. 13, 2020) (precedential). The Court should not exercise its discretion here

because this Petition (1) presents substantially different art and arguments that were not previously presented to the Office, and (2) even if part one of the framework could be satisfied, the Examiner erred in a manner material to the patentability of challenged claims.

First, none of Grounds 1-4 rely on art that was previously presented, much less considered by the Office. Second, even assuming part one of the framework could be satisfied, the Examiner mistakenly allowed the ‘918 Patent claims by overlooking teachings in the prior art that renders the challenged claims obvious, as explained by Dr. White’s declaration. *See* MPEP 2411.04(V)(B).

B. 35 U.S.C. § 314(a)

Apple, Inc. v. Fintiv, Inc., IPR2020-00019, Paper 11 (Mar. 20, 2020) (precedential) favors institution because this Petition presents compelling evidence of unpatentability and, per PTO interim guidance, Petitioner stipulates that if the Board institutes this IPR then Petitioner will not seek resolution in the district court litigation of invalidity based on the grounds in this Petition, or any grounds that could have reasonably been raised in this Petition. *See Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 at 17 (PTAB Dec. 1, 2020) (precedential); 35 U.S.C. §311.

XII. CONCLUSION

In view of the foregoing, claims 1 and 3-8 of the '918 Patent are not patentable and Petitioner requests this IPR be instituted.

Date: March 18, 2025

Respectfully submitted,

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APPENDIX - Claim Limitation Listing

Claim 1

1[PRE] A fluid dispersion assembly operatively engages a container of an operative fluid and a compressed air source and generates and discharges a fluid dispersion into a surrounding airspace, said fluid dispersion assembly comprising:

1[A] a diffusion unit at least partially defining an enclosed diffusion chamber,

1[B] wherein said diffusion chamber comprises an upper chamber and a lower chamber,

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

1[D] a diffusion assembly disposed in an operative engagement with said diffusion unit,

1[E] wherein said diffusion assembly comprises an atomizer assembly,

1[F] said diffusion assembly is disposed between said upper chamber and said lower chamber,

1[G] said atomizer assembly comprising an atomizer air inlet channel, a fluid inlet, a mixing chamber, and an atomizer exhaust aperture, and

1[H] said atomizer air inlet channel interconnected to the compressed air source and

1[I] said fluid inlet disposed in fluid communication with the operative fluid in the container,

1[J] wherein the compressed air and the operative fluid are mixed together in said mixing chamber to form the fluid dispersion.

Claim 3

The fluid dispersion assembly as recited in claim 1 wherein said atomizer exhaust aperture is disposed in a communicating relation between said mixing chamber and said lower chamber to facilitate transfer of the fluid dispersion therebetween.

Claim 4

The fluid dispersion assembly as recited in claim 1 wherein said diffusion chamber facilitates formation of the fluid dispersion prior to discharge of the fluid dispersion from said diffusion chamber through said discharge port and into the surrounding airspace.

Claim 5

5[PRE] 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:

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

5[B] wherein said diffusion chamber comprises an upper chamber and a lower chamber,

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

5[D] a diffusion assembly disposed in an operative engagement with said diffusion unit,

5[E] wherein said diffusion assembly comprises an atomizer assembly,

5[F] said diffusion assembly is disposed between said upper chamber and said lower chamber.

Claim 6

The fluid dispersion assembly as recited in claim 5 wherein said atomizer assembly comprising an atomizer air inlet channel, a fluid inlet, a mixing chamber, and an atomizer exhaust aperture.

Claim 7

The fluid dispersion assembly as recited in claim 6 wherein said atomizer air inlet channel is interconnected to the compressed air source and said fluid inlet disposed in fluid communication with the operative fluid in the container, wherein the compressed air and the operative fluid are mixed together in said mixing chamber to form the fluid dispersion.

Claim 8

The fluid dispersion assembly as recited in claim 7 wherein said diffusion chamber facilitates formation of the fluid dispersion prior to discharge of the fluid dispersion from said diffusion chamber through said discharge port and into the surrounding airspace.

CERTIFICATE OF WORD COUNT

Pursuant 37 C.F.R. § 42.24(a)(1)(i), Petitioner certifies that this Petition includes 10,803 words, as measured by Microsoft Word, where such word count excludes the table of contents, mandatory notices, mandatory notices under § 42.8, certificates of service, this certificate of word count, appendix of exhibits or claim listing, and exhibits.

CERTIFICATE OF SERVICE UNDER 37 CFR § 42.6(e)(4)

The undersigned hereby certifies that a copy of the accompanying Petition for *inter partes* review, all accompanying exhibits, and the Power of Attorney has been served on March 18, 2025, by delivering a copy via Federal Express to attorney of record for U.S. Patent No. 10,092,918 at the following address:

Peter A. Matos
Malloy & Malloy, P.L.
2800 S.W. Third Avenue
Miami, FL 33129

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