[redacted]

housing … the heating element is electrically configured to vaporize at least a portion of ***the solution*** to be contained in the solution holding medium for oral provision to an individual in an airflow from the second aperture") (emphasis added). However, Dr. Vallee has not alleged, and the evidence will not show, that the heating coil in the Vuse Solo Cartridges has a special configuration that would cause it to vaporize solution that is being held [redacted]. *See, e.g.,* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶ 697. [redacted] *Id*.; JX-0577C (Vuse Solo PMTA, Sec H), at JX-0577C.26-41, 108-118; JX-0509C (Alto and Solo Graphics). It is not configured to heat or vaporize any portion of the solution held in the alleged solution holding medium. *Id.*

2. The alleged heating element does not "vaporize" any solution "for oral provision" but instead delivers aerosol to users

Dr. Vallee is expected to argue at the Hearing that the Vuse Solo Systems satisfy the limitation because the aerosol produced by the Vuse Solo Systems "would contain vaporized e-liquid." *See, e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1899-1904, 2041. However, for the same reasons discussed in Section IV.D.1.i.e.3 *supra*, the evidence will show that the Asserted Patents recognize the significant material differences between a vapor and an aerosol, and the patent chose to disclose and claim providing only a vaporized solution—not an aerosolized solution—"for oral provision to an individual." And the evidence will show that similar to the JUUL1 System, [redacted]. JX-0577C (Vuse Solo PMTA, Sec H), at JX-0577C.12 ([redacted]), JX-0577C.38 ([redacted]), JX-0577C.41 ([redacted]

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[redacted]

[redacted]), JX-0577C.100 ([redacted]); RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 341-346, 705. Therefore, Dr. Vallee fails his burden to show that the Vuse Solo Systems, which only provide aerosolized solution, meet the limitation of providing vaporized solution for oral provision.

3. The wick cannot be part of the claimed heating element

Noticeably, unlike Dr. Vallee's assertion with respect to the '864 Patent, where Dr. Vallee alleges the wick forms part of the claimed "heating element, Dr. Vallee has not alleged that the wick also forms part of the "heating element" for the '881 Patent. *See, e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1664, 1886-1888, 1899-1904. However, to the extent that Dr. Vallee is allowed to change his opinion and argue that the heating coil and the wick within the coil, in combination, is the recited heating element, the evidence at the Hearing will show otherwise, because the wick does not itself output heat and also because the asserted claims do not allow a wick that is separate from the heating element to be part of the claimed heating element. *See e.g.,* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 685.

First, for the same reasons discussed in Section IV.D.1.i.e.1 *supra*, the intrinsic record does not allow the claimed heating element being made of non-wicking material to include a separate wick.

Second, for the reasons discussed in Section IV.F.1.i.a *supra*, Dr. Vallee improperly separates the single-piece wick into three portions and includes two portions as forming part of the solution holding medium and the third portion as forming part of the heating element. The asserted claim recites the "heating element" and the "solution holding medium" as two separate and distinct components of the cartridge. *See, e.g.,* JX-0003 ('881 Patent), Claim 16 ("the cartridge comprising:

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[redacted]

a housing having an interior and a solution holding medium adapted to hold a solution in the interior of the housing, … a heating element located in the interior of the housing …"). Therefore, Dr. Vallee cannot rely on the common wick as forming ***both*** the solution holding medium ***and*** heating element.

Third, the evidence will show that the wick or the portion of the wick within the coil cannot be part of the claimed heating element because it does not meet any parties' proposed constructions for the "heating element …" limitations. *See e.g.,* RX-0845 (Revised Joint Claim Construction Chart); RX-1538 (Claim Construction Order (No. 36)) at RX-1538.38-39 (opining that claim 1 of the '881 requires "electrical connections of the heating element" because the claimed "heating element" must be "responsive to electrical power received from the battery through the electrically conductive portions of the cartridge and the power source"). The evidence will show that the [redacted] and therefore cannot receive power from the power source. JX-0577C (Vuse Solo PMTA, Sec H), at JX-0577C.28-31, 34-41; JX-0509C (Alto and Solo Graphics). [redacted] *Id*. Further, the evidence will show that the wick is made of [redacted] under NJOY's proposed construction (if not subject to § 112 (6)). *Id.* The evidence will also show that the [redacted] in the Vuse Solo Systems [redacted] and therefore cannot "perform heating" or "output heat" under JLI's proposed construction (if not subject to § 112 (6)). *Id.* The evidence will further show that because the wick is made of [redacted] it is not a "conductive material that, in response to current, outputs heat to vaporize at least a portion of the solution for oral provision to an individual in the airflow" under Staff's proposed construction (if not subject to § 112 (6)). *Id*. Even NJOY's own 30(b)(6) witness, Mr. Bonet, agreed that NJOY does not consider components that do not perform

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[redacted]

heating, such as the wick, to be a heating element or part of the heating element. *See* RX-1120C (Bonet Tr.) at 218:9-219:12. The wick in the Vuse Solo Cartridges, therefore, cannot be part of the alleged "heating element."

d. NJOY is unable to establish that the Vuse Solo Systems practice the claimed "airflow passageway having a length extending centrally and axially with respect to the housing intermediate of the first aperture on the first end of the housing and the second aperture on the second end of the housing"

Claim 1 of the '881 Patent requires the airflow passageway to extend centrally and axially from the first aperture on the first end to the second aperture on the second end. *See* JX-0003 ('881 Patent), Claim [1.4] ("the housing includes an airflow passageway that extends centrally and axially with respect to the housing intermediate of the first aperture on the first end of the housing and the second aperture on the second end of the housing, wherein the airflow passageway is configured to allow an airflow through the cartridge from the first aperture to the second aperture of the housing"); RX-1538 (Claim Construction Order (No. 36)) at RX-1538.5 (adopting the parties agreed upon construction for the "airflow passageway …" limitations: "The airflow passageway ***extends in a straight path through the center of the housing from a first opening on the first end to a second opening on the opposite end of the housing***".).

NJOY and Dr. Vallee will argue that there exists a central and axial airflow passageway in the interior of the Vuse Solo Cartridges extending from the alleged first aperture to the alleged second aperture, *i.e.*, the area shown in blue in the below figures from Dr. Vallee's expert report. *See* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1867-1871. As a preliminary matter, although Dr. Vallee concedes that the airflow passageway must have a physical structure, he has not identified what structures form his alleged airflow passageway in the Vuse Solo Systems. *See, e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶ 1867-1871; RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶ 724; RX-1530C (*Fuma v. RJR*, Vallee Reply Infringement Report) at RX-1530C.91 ("the claims

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[redacted]

restrict the airflow passageway to a structure going through the cartridge"). His alleged annotation of the airflow passageway focuses only on the path of air taken rather than identifying the structure of airflow passageway, which he conceded is not identifying the airflow passageway. ; RX-1530C (*Fuma v. RJR*, Vallee Reply Infringement Report) at RX-1530C.71 (Defendant's expert "exclusively focuses on the path of air taken rather than identifying the structure of the [Accused Product]'s airflow passageway[.]"), RX-1530C.76 (Defendant's expert "only annotated one path of air and did not annotate the structure of the airflow passageway."). His annotations, in fact, specifically refer to the "Cartridge Air Flow Path" despite the claim limitation requiring an airflow passageway":


[redacted]

CX-2157C (Vallee Opening Rpt.) at ¶ 1870 (Left: G1; Right: G2). *See also id.* at ¶ 1870 ("The centrally and axially extending airflow passageway is also depicted and described in the VUSE Solo PMTA, which explains that ***airflow*** passes through the passageway from the first aperture to the second aperture.").

Thus, it is unclear exactly what structure, if any, Dr. Vallee has identified as the structure of the airflow passageway; nor will Dr. Vallee be able to allege any such structure for the airflow passageway at the Hearing. CX-2157C (Vallee Opening Rpt.) at ¶¶ 1867-1871. For this reason alone, Dr. Vallee fails his burden of proving the Vuse Solo Cartridges include the claimed airflow

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[redacted]

passageway. However, to the extent Dr. Vallee is retroactively allowed to identify structures around the airflow path he annotates in his diagrams ([redacted]), the evidence will show that this alleged airflow passageway still cannot practice the claimed "airflow passageway …" limitation. RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 714-728; JX-0577C (Vuse Solo PMTA, Sec H), at JX-0577C.26-41, 45, 108-118; JX-0509C (Alto and Solo Graphics).

1. The alleged airflow passageway does not extend from a centrally located first aperture all the way to a centrally located second aperture

To begin, as the only airflow passageway in the Vuse Solo Systems that has an actual separate structure [redacted] shown in the below figures, the evidence will show that there is no central and axial airflow passageway extending from the alleged first aperture to the alleged second aperture of the Vuse Solo Systems. *See e.g.,* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 714-728; JX-0577C (Vuse Solo PMTA, Sec H), at JX-0577C.26-41; JX-0509C (Alto and Solo Graphics). [redacted]

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[redacted]



JX-0509C (Alto and Solo Graphics), at JX-0509C.19 (annotated in red).



JX-0509C (Alto and Solo Graphics), at JX-0509C.21 (annotated in red).

2. The alleged airflow passageway does not extend centrally and axially from the first aperture to the second aperture

Claim 1 requires that the airflow passageway extends "***centrally and axially***" from the first aperture to the second aperture." *See* JX-0003 ('881 Patent), Claim [1.4]; RX-1538 (Claim Construction Order (No. 36)) at RX-1538.5. Dr. Vallee will allege that the blue highlighting corresponds to the claimed airflow passageway. *See, e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1869-1870. However, the evidence will show that the blue highlighting not only does not represent

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[redacted]

what Dr. Vallee seemingly alleges as the airflow passageway but also incorrectly includes structures that should have been part of the airflow passageway boundary.



CX-2157C (Vallee Opening Rpt.) at ¶ 1870 (G1) (annotated in green; blue and red annotations in original).



CX-2157C (Vallee Opening Rpt.) at ¶ 1870 (G2) (annotated in green; blue and red annotations in original).

As discussed above, Dr. Vallee has never identified what structures form his alleged airflow passageway. But to the extent it can be ascertained—and Dr. Vallee is allowed to testify that the

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[redacted]

[redacted]—the alleged airflow passageway is not central and axial for two reasons. First, the evidence will show that Dr. Vallee's blue highlighted airflow passageway incorrectly includes [redacted]. *See e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶ 1870; RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 714-728; JX-0509C (Alto and Solo Graphics), at JX-0509C.21; JX-0577C (Vuse Solo PMTA, Sec H), at JX-0577C.26-41, 45. It cannot be disputed that air cannot flow through the [redacted] *Id.;* RX-1014C (Vallee Tr. (Apr. 11, 2024)) at 101:16-19, 114:1-5. Nonetheless, Dr. Vallee conveniently includes [redacted] in his alleged airflow passageway. As Dr. Dahm will testify, because air cannot flow through [redacted] and these components define the boundary of where air can or cannot flow, the periphery of [redacted] must be part of the structure of the airflow passageway. CX-2157C (Vallee Opening Rpt.) at ¶ 1870; RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 714-728; JX-0509C (Alto and Solo Graphics); JX-0577C (Vuse Solo PMTA, Sec H), at JX-0577C.34-41, 45. Thus, because [redacted] and because the airflow passageway must form around [redacted], the airflow passageway cannot be central and axial with respect to the central longitudinal axis of the housing.

Second, to create his allegedly central and axial airflow passageway, Dr. Vallee ignores the shape of at least [redacted] in the Vuse Solo Cartridges in his annotated figures. Regardless of [redacted], as explained below the alleged airflow passageways of the Solo G1 and Solo G2 Cartridges cannot be central and axial.

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[redacted]

Vuse Solo G1 Cartridge: The evidence will show that [redacted]. *See e.g.,* JX-0577C (Vuse Solo PMTA, Sec H), at JX-0577C.29, 32-33; JX-0509C (Alto and Solo Graphics) at JX-0509C.19-20; RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 714-728.

[redacted]

JX-0577C (Vuse Solo PMTA, Sec H), at JX-0577C.29 (annotated in red).

As a result, Dr. Vallee's alleged airflow passageway must be corrected to the airflow passageway shown below, which is clearly not central or axial at least between the alleged first aperture and [redacted]. JX-0577C (Vuse Solo PMTA, Sec H), at JX-0577C.26-33; JX-0509C (Alto and Solo Graphics) at JX-0509C.19-20.

[redacted]

JX-0509C (Alto and Solo Graphics), at JX-0509C.19 (annotated in red, yellow, and blue).

Vuse Solo G2 Cartridge: The evidence will show that the shape of the interior of [redacted], which Dr. Vallee alleges as forming his alleged airflow passageway, is not central

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[redacted]

or axial, at least because [redacted] *See e.g.*, RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 714-728; JX-0509C (Alto and Solo Graphics), at JX-0509C.21; JX-0577C (Vuse Solo PMTA, Sec H), at JX-0577C.34-41.

[redacted]

JX-0509C (Alto and Solo Graphics), at JX-0509C.21 (annotated in blue to show the entire airflow passageway under Dr. Vallee's theory and yellow).

3. Dr. Vallee's interpretation of a central and axial airflow passageway precludes the Vuse Solo Systems from infringing

Dr. Vallee argues that Mr. Leinsing's proposed modifications to the airflow passageway of the Wang '927 device would not result in a central and axial airflow passageway because a portion of the airflow passageway would extend the entire diameter of Wang '927's housing. But if Dr. Vallee is correct that an airflow passageway cannot extend the entire diameter of a claimed cartridge, then the Vuse Solo Cartridges also cannot include a central and axial airflow passageway because [redacted]. *See, e.g.,* JX-0577C (Vuse Solo PMTA, Sec H), at JX-0577C.26-41; JX-0509C (Alto and Solo Graphics).

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[redacted]

4. The interior of the housing, solution holding medium, and airflow passageway must comprise separate structures

As discussed in Section IV.D.1.i.f.5 *supra*, claim 1 requires that the airflow passageway be separate and distinct from other claimed elements, such as the solution holding medium and the housing interior. *See e.g.,* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 714-728; JX-0577C (Vuse Solo PMTA, Sec H), at JX-0577C.26-41; JX-0509C (Alto and Solo Graphics). Thus, the reservoir substrate cannot be part of the alleged solution holding medium ***and*** the alleged airflow passageway. *Id*. Similarly, the mouth end cap, the external tube, and the cartridge base cannot be part of the alleged housing interior and the alleged airflow passageway. *Id*. Therefore, Dr. Vallee fails to show the Vuse Solo Cartridges include the claimed airflow passageway.

e. NJOY fails to show that the Vuse Solo System practices the claimed "solution holding medium surrounds the airflow passageway and the heating element"

Claim 1 of the '881 Patent requires "the solution holding medium surrounds the airflow passageway and the heating element in the interior of the housing and intermediate of the first end and the second end." *See e.g.,* JX-0003 ('881 Patent), Claim [1.8]. Despite conceding that the allege solution holding medium in the Vuse Solo Cartridges does not surround the entire length of the alleged airflow passageway and the alleged heating element, Dr. Vallee is nonetheless expected to allege at the Hearing that the alleged solution holding medium surrounds the alleged airflow passageway and the alleged heating element, on the basis that the claims do not require the solution holding medium to surround the entire length of the airflow passageway and the heating element. *See e.g.*, CX-2157C (Vallee Opening Rpt.) at ¶¶ 1891-1895; RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 677-682.

However, the only support Dr. Vallee has for his argument that the solution holding medium need only surround a portion of the airflow passageway or heating element, is Fig. 2 of the Asserted

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[redacted]

Patent, which he alleges discloses the solution holding medium only surrounding some length of the airflow passageway but not the entire length. *Id.* However, Dr. Valle's reliance on Fig. 2 is misplaced. *Id*. Fig. 2 shows an embodiment with the optional gap, which is not claimed in the Asserted Patents. JX-0003 ('881 Patent), 7:61-65 ("***This gap is optional***, as other designs may call for the walls of the airflow passageway 214 to be permeable or have apertures therein, to allow for vaporized solution to mix with air in the airflow passageway 214.") (emphasis added). Without this optional gap, the solution holding medium would surround the entire length of the airflow passageway and the heating element. *Id.* at Fig. 2. Notably, Dr. Vallee points to no disclosure in the Asserted Patents that the inventors considered the solution holding medium to be surrounding the passageway in the embodiment of the optional gap. CX-2157C (Vallee Opening Rpt.) at ¶¶ 1891-1895. Nor is there any such disclosure.

In fact, as the below figures show—and Dr. Vallee concedes—the alleged solution holding medium in both the G1 and G2 Cartridges, [redacted] (annotated in blue by Dr. Vallee). *See e.g.,* CX-2157C (Vallee Opening Rpt.), at ¶¶ 1683, 1891-1895.

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[redacted]



CX-2157C (Vallee Opening Rpt.), at ¶ 1683 (annotated in red; purple and blue annotations in original).



CX-2157C (Vallee Opening Rpt.), at ¶ 1683 (annotated in red; purple and blue annotations in original).

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[redacted]

In the case of the Vuse Solo G1 Cartridge, [redacted]. *Id.*; JX-0577C (Vuse Solo PMTA, Sec H), at JX-0577C.26-33. If the solution holding medium could not include [redacted]. *Id*. Further, even if Dr. Vallee were to be allowed to argue that the heating element includes not only the heating coil but also [redacted]. *Id.*

[redacted]

CX-2157C (Vallee Opening Rpt.), at ¶ 1683 (citing JX-0577C (Vuse Solo PMTA, Sec H), at JX-0577C.32) (annotated in purple; blue annotation in original).

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[redacted]

f. NJOY fails to show the Vuse Solo Systems satisfy the airflow passing on both transverse sides of the heating element limitations

Claim 1 of the ’881 Patent requires airflow to pass “on both transverse sides of the heating element during use of the electronic vaporizer.” *See e.g.,* JX-0003 (’881 Patent), Claim [1.7] (“the airflow through the passageway passes on both transverse sides of the [heating] element”). Dr. Vallee is expected to argue that the following annotated portions of the heating coil in the Vuse Solo Systems are the alleged “transverse sides:



CX-2157C (Vallee Opening Rpt.) at p. 1008 (annotating JX-0577C (Vuse Solo PMTA, Sec H), at JX-0577C.32) (G1 Cartridge).

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[redacted]



CX-2157C (Vallee Opening Rpt.) at p. 1008 (annotating JX-0577C (Vuse Solo PMTA, Sec H), at JX-0577C.40) (G2 Cartridge).

However, Dr. Vallee has not provided, and will be unable to provide at the Hearing, any explanation as to how the "sides" Dr. Vallee identifies can be reconciled with the prosecution history of related patents of the Asserted Patents, where the Applicant disclaimed "sides" parallel to the central longitudinal axis of the housing as being the claimed "transverse sides." *See* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1883-1890; RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 739-744; RX-0533 (File History of US App. '475) at RMX-0533.156, 225. Moreover, Dr. Vallee has not provided, and will be unable to provide at the Hearing, any alternative theories as to which sides of the alleged heating element can be the transverse sides. *See* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1883-1890.

Even if Dr. Vallee is able to provide a new explanation at the Hearing as to how the alleged transverse sides of the Vuse Solo Systems' heating coil can be "transverse sides" in light of the intrinsic evidence, NJOY will still fail to show that the airflow passes on his alleged transverse sides of the alleged heating element. *See, e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1883-1890;

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[redacted]

RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 739-744. This is because the airflow that needs to pass on both transverse sides of the heating element is not any airflow, but the airflow from the first aperture to the second aperture. *See, e.g.,* JX-0003 ('881 Patent) at claim 1 ("the airflow passageway is configured to allow ***an airflow*** through the cartridge ***from the first aperture*** to the second aperture of the housing, … ***the airflow*** through the passageway passes on both transverse sides of the [heating] element") (emphasis added). Dr. Vallee has performed no analysis, and therefore will not be able to meet his burden to show, whether any airflow from Dr. Vallee's identified "first aperture" passes on both transverse sides of the alleged heating element. *See, e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1883-1890. Dr Dahm will explain, for example, that a POSITA cannot assume, as Dr. Vallee has, that the substantially over-simplistic arrows shown in RJR's PTMA (*e.g.*, JX-0577C (Vuse Solo PMTA, Sec H), at JX-0577C.32-33, 40-41) reflect the actual airflow through the Vuse Solo G1 and G2 Cartridges. *See e.g.,* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 739-744; RX-0918 (Fundamentals of Fluid Mechanics); RX-0915 (Pipe Flow Presentation); Section IV.D.2.i.h.1 *infra*. A POSITA would also not assume, as Dr. Vallee has, that the airflow coming out of the alleged first aperture splits and passes on both of Dr. Vallee's transverse sides because of the well-known "vena contracta" flow phenomenon and recirculation zones. *Id*. To determine how the air coming out of the alleged first aperture flows from the alleged first aperture, through the flow tube, and eventually out of the alleged second end, whether it splits at all, would require significant computational simulation and testing of the Vuse Solo Systems, which Dr. Vallee has not performed. *Id.* A POSITA would need the native CAD files to simulate airflow within the Vuse Solo Systems, which has not been produced in this Investigation. Accordingly, Dr. Vallee has not met his burden of showing that this limitation is met.

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[redacted]

g. NJOY fails to show the Vuse Solo Systems satisfy the heating element extending "transversely across the airflow passageway" limitation

The asserted independent claim 1 of the '881 Patent requires the heating element to extend "transversely across the airflow passageway." *See e.g.,* JX-0003 ('881 Patent), Claim [1.7] ("a heating element located in the interior of the housing, wherein the heating element extends transversely across the airflow passageway"). Dr. Vallee is expected to testify that the coil "extends transversely across the airflow passageway." *See* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1886-1888. As explained below, the evidence at the Hearing, including the testimony of JLI's expert Dr. Dahm, will show that the alleged heating element [redacted] *See e.g.,* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 683-690; JX-0577C (Vuse Solo PMTA, Sec H), at JX-0577C.26-41, 108-118; JX-0509C (Alto and Solo Graphics).

[redacted]

JX-0577C (Vuse Solo PMTA, Sec H), at JX-0577C.40 (annotated in red and yellow; blue annotation by Dr. Vallee); CX-2157C (Vallee Opening Rpt.) at ¶ 1870.

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[redacted]

Further, for reasons discussed in Section IV.D.1.i.h *supra*, the aforementioned "transversely across" limitation requires the heating element to extend "from one end to the other of the airflow passageway." RX-1538 (Order No. 36 Claim Construction Order) at RX-1538.17. [redacted], and therefore does not meet the "transversely across" limitation. JX-0577C (Vuse Solo PMTA, Sec H), at JX-0577C.26-41; JX-0509C (Alto and Solo Graphics), at JX-0509C.17. For example, based on the below figures of the Solo G1 and G2 Cartridges, [redacted].



JX-0509C (Alto and Solo Graphics), at JX-0509C.17 (annotated in red and blue).



JX-0509C (Alto and Solo Graphics), at JX-0509C.17 (annotated in red and blue).

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[redacted]

2. The '864 Patent

i. NJOY ACE/[redacted]

NJOY asserts that the NJOY ACE and [redacted] Systems (collectively the "NJOY DI Systems") practice claims 9, 10, 12, 13, 15, and 20 of the '864 Patent. However, the evidence will show that the NJOY DI Systems do not practice any of the asserted claims of the '864 Patent, at least because NJOY fails to meet its burden of proving the NJOY DI Systems satisfy the following limitations contained in each of the claims:

- "a solution holding medium adapted to hold a solution";
- "the first end of the housing being adapted to electrically couple to the power source";
- "the heating element being configured to vaporize at least a portion of the solution for oral provision to an individual in the airflow";
- "the airflow through the housing follows an airflow path, a first portion of the airflow path proximate the first aperture being defined substantially centrally and axially with respect to the central longitudinal axis of the housing, and a second portion of the airflow path proximate to the second aperture being defined substantially centrally and axially with respect to the central longitudinal axis of the housing";
- "the heating element extending transversely to a central longitudinal axis of the housing"; and
- "the heating element … being at least partially exposed to the airflow."

a. NJOY fails to show the NJOY DI Systems satisfy "a solution holding medium adapted to hold a solution" limitations

To begin, asserted Claim 9 requires the claimed cartridge to have "a housing having an interior and a solution holding medium adapted to hold a solution…". *See* JX-0001 ('864 Patent), at Claim [9.2]. Dr. Vallee is expected to assert at the Hearing that the interior of the "tank" component of the NJOY DI Pods satisfies the claimed solution holding medium. *See* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1433-1434, 1503-1504. However, the evidence at the Hearing,

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[redacted]

including the testimony of JLI's expert Dr. Dahm, will show that NJOY cannot meet its burden of proving that the NJOY DI Systems satisfy the aforementioned "a solution holding medium adapted to hold a solution" limitation of the '864 Patent because (1) the tank is not separate and distinct from the cartridge housing, and (2) the alleged solution holding medium—the tank of the NJOY DI Pods—cannot hold any solution. *See e.g.,* RX-0841C (Expert Report of Werner J.A. Dahm, Ph.D.) at ¶¶ 525-534; RPX-0012 – RPX-0015 (Physical Samples of NJOY DI Systems); JX-0498C (NJOY [redacted] MIP App. A); JX-0558C (NJOY ACE PMTA, Sec 2.3.1); JX-0557C (ACE [redacted]); JX-0562C (ACE CAD); RX-0934C ([redacted] CAD).

1. The alleged solution holding medium is not a separate and distinct component from the alleged housing interior

In addition to identifying the interior of the tank of the NJOY DI Pods as the claimed solution holding medium, Dr. Vallee is also expected to identify the interior of the tank as the claimed interior of the housing. *See* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1430-1432, 1500-1502. As Dr. Dahm will explain, however, Dr. Vallee's opinion ignores that independent claim 9 expressly requires a solution holding medium that is separate and distinct from the interior of the housing. *See* JX-0001 ('864 Patent), Claim [9.2] ("a housing having an interior ***and*** a solution holding medium adapted to hold a solution"); *see also* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 532-534; Section IV.D.1.i.c.2 *supra*. The interior of the tank thus cannot be the claimed "an interior" of the housing ***and*** the "solution holding medium" as Dr. Vallee will allege. *Id.*

Dr. Vallee will also argue that JLI's requirement of having a solution holding medium separate from the interior of the housing would require "a solution holding medium outside of the housing." *See* CX-2157C (Vallee Opening Rpt.) at ¶ 2019. But the evidence will show that having a solution holding medium separate from the interior of the housing is well supported by the claim and the disclosure of the '864 Patent. *See generally* JX-0001 ('864 Patent). For example, FIG. 2

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of the ’864 Patent and accompanying disclosure, contrary to Dr. Vallee’s assertion, clearly depicts a solution holding medium (i.e., an absorbent material 204) being an entirely separate material and structure from each of the housing 202 and its interior, heating element 222, airflow passageway 214, and other components. JX-0001 (’864 Patent) at FIG. 2, 5:65-8:25, Claim 9.

2. The alleged solution holding medium is not “adapted to hold a solution”

Dr. Vallee will be unable to provide any evidence at the Hearing proving that the interior of the tank of the NJOY DI Pods itself, is capable of holding any solution. *See* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1433-1434, 1503-1504. As Dr. Dahm will explain, the interior of the tank forms a cavity, which is merely an open space within the alleged housing; by itself, the cavity is unable to hold any solution, and placing e-liquid in the cavity without any other components would cause the NJOY DI Pods to leak or otherwise be inoperable. *See* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 527-529; JX-0562C (ACE CAD); RX-0934C ([redacted] CAD); JX-0558C (NJOY ACE PMTA, Sec 2.3.1) at JX-0558C.8-9, 13-20; JX-0498C (NJOY [redacted] MIP App. A) at JX-0498C.15, 28-37. To the extend Dr. Vallee plans to identify any additional components that are required for holding the solution, such as the [redacted] as being part of the alleged solution holding medium, he should be precluded from doing so because he has never alleged that the solution holding medium of the NJOY DI Pods can include anything other than the tank. *See* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1433-1434 (only identifying the interior of the tank as the claimed solution holding medium), 1503-1504 (same).

b. NJOY fails to show the NJOY DI Systems satisfy “the first end of the housing being adapted to electrically couple to the power source” limitations

Asserted Claim 9 requires “the first end of the housing being adapted to electrically couple to the power source”. *See* JX-0001 (’864 Patent), at Claim [9.3]. JLI expects Dr. Vallee will assert

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at the Hearing that the electrical contacts of the NJOY DI Pods are part of the first end of the housing and adapted to electrically couple the first end of the housing to the power source. CX-2157C (Vallee Opening Rpt.) at ¶¶ 1439-1440, 1510; *see also id.* at ¶¶ 1430-1432, 1500-1502. However, the evidence will clearly show that the electrical contacts are not part of the housing and therefore the first end of the housing (without the electrical contacts) is not adapted to electrically couple to the power source. JX-0558C (NJOY ACE PMTA, Sec 2.3.1) at JX-0558C.8-9, 13-20; JX-0498C (NJOY [redacted] MIP App. A) at JX-0498C.15, 28-37; JX-0557C (ACE [redacted]) at JX-0557C.16-22; RX-0934C ([redacted] CAD); RPX-0012 – RPX-0015 (Physical Samples of NJOY DI Systems); RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 535-540.

The evidence will show that the electrical contacts cannot meet the definitions of "housing" for two reasons. First, the electrical contacts are not *outside structures* containing the device internals. *Id.*; Sections IV.B.1 and IV.D.1.i.a *supra*. Instead, the electrical contacts are components internal to the NJOY DI Pods (i.e., what Dr. Vallee alleges as the "cartridge") and protected by the atomizer holder and bottom cover of the NJOY DI Pods. *Id*. In the [redacted] Pod, the electrical contacts are even further recessed from the bottom surface of the bottom cover and atomizer holder. *Id.* Second, even under Dr. Vallee's own definition of "housing" – anything "connected to the exterior of the housing" is "part of the housing" – the electrical contacts cannot be part of the housing because they are only connected to the atomizer that is internal to the NJOY DI Pod cartridge; it is not connected to the atomizer holder or the bottom cover part of the housing. *Id.*

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[redacted]



Neither NJOY nor Dr. Vallee has, or is expected to, point to any other portion of the actual housing of the NJOY DI Pods as being adapted to electrically couple to the NJOY DI Devices. *See* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 538-539. Therefore, because the electrical contacts of the NJOY DI Pods are not part of their housing, and because those are the only components that NJOY has claimed are adapted to electrically couple to the NJOY DI Devices, NJOY will not be able to show that the actual housing of the NJOY DI Pods is adapted to electrically couple to the power source as required by the claims. *Id.;* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1439-1441, 1509-1511.

c. NJOY fails to show the NJOY DI Systems satisfy "heating element being configured to vaporize at least a portion of the solution for oral provision to an individual in the airflow"

Asserted Claim 9 requires the claimed cartridge to have a "heating element being configured to vaporize at least a portion of the solution for oral provision to an individual in the airflow." *See* JX-0001 ('864 Patent), at Claim [9.6]. NJOY and Dr. Vallee will assert that the S-trace and the porous ceramic wick of the NJOY DI Systems collectively as the claimed "heating

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element" that is "configured to vaporize at least a portion of the solution for oral provision to an individual in the airflow." *See* RX-1015C (Vallee Depo. Tr. 2024-04-12) at 447:20-448:19; CX-2157C (Vallee Opening Rpt.) at ¶¶ 1447, 1451-1459, 1517, 1521-1529. But as explained below, the evidence at the Hearing, including the testimony of JLI's expert Dr. Dahm, will show that the NJOY DI Systems do not practice the aforementioned "heating element" limitations of the '864 Patent because (1) the wick cannot be part of the claimed heating element, (2) the NJOY DI Systems' S-trace alone is not configured to vaporize the claimed solution, and (3) the S-trace and the NJOY DI Systems deliver an aerosol for oral provision to an individual—not a vapor. *See, e.g.,* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 541-561; RPX-0012 – RPX-0015 (Physical Samples of NJOY DI Systems); JX-0498C (NJOY [redacted] MIP App. A); JX-0558C (NJOY ACE PMTA, Sec 2.3.1); JX-0557C (ACE [redacted]); JX-0562C (ACE CAD); RX-0934C [redacted] CAD).

1. The porous ceramic wick cannot be part of the claimed "heating element"

The evidence at the Hearing will show that for the same reasons discussed in Section IV.D.1.i.e.1 *supra*, the porous ceramic wick cannot be part of the claimed "heating element" because it does not itself output heat and because claim 9 does not allow a wick that is separate from the heating element to be part of the claimed heating element. *See e.g.,* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶ 546. The ALJ has also provided guidance that the "heating element" as recited in claim 9 of the '864 Patent must "receive[] power from a power source." RX-1538 (Claim Construction Order (No. 36)) at RX-1538.40-41 ("Claim 9 thus recites: (1) the physical location (interior of the housing) and orientation (transverse to longitudinal axis) of the heating element; (2) that the heating element is partially exposed to airflow; and (3) that it receives power from a power source. These recitations support that the heating element is claimed as structure.").

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However, the evidence will show that the ceramic wick is not connected to the electrical contacts and does not receive any power from the power source. JX-0558C (NJOY ACE PMTA, Sec 2.3.1) at JX-0558C.13-14, 17-19; JX-0498C (NJOY [redacted] MIP App. A) at JX-0498C.28-29, 33-35; JX-0562C (ACE CAD); RX-0934C ([redacted] CAD); RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 541-561.

[redacted] *Id.* The evidence will also show that the porous ceramic wick in the NJOY DI Pods does not generate heat and therefore cannot "perform heating" or "output heat" under JLI's proposed construction (if not subject to § 112 (6)). *Id.* The evidence will further show that because the wick is made of "porous ceramic," it is not a "conductive material that, in response to current, outputs heat to vaporize at least a portion of the solution for oral provision to an individual in the airflow" under Staff's proposed construction (if not subject to § 112 (6)). *Id*. Neither NJOY nor Dr. Vallee has put forth any evidence that the porous ceramic wick in the NJOY DI Pods comprises a conductive material, receives any current or power from a power source, or outputs heat. *See e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1447-1459, 1517-1529. [redacted]. *See* RX-1120C (Bonet Depo. Tr. 2024-03-06) at 26:24-28:14, 208:9-219:12.

2. The S-trace is not "configured to vaporize at least a portion of the solution" held in the solution holding medium

[redacted]. CX-2157C (Vallee Opening Rpt.) at ¶¶ 1454-1458; *see also* JX-0558C (NJOY ACE PMTA, Sec 2.3.1) at JX-0558C.8-9, 13-

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20; JX-0498C (NJOY [redacted] MIP App. A) at JX-0498C.15, 28-37. However, Claim 9 of the '864 Patent further requires the heating element to be configured to vaporize "at least a portion of ***the solution***" held in the solution holding medium. JX-0001 ('864 Patent), Claim 9; Section IV.D.1.i.e.2 *supra*. [redacted] JX-0558C (NJOY ACE PMTA, Sec 2.3.1) at JX-0558C.8-9, 13-20; JX-0498C (NJOY [redacted] MIP App. A) at JX-0498C.15, 28-37; JX-0557C (ACE [redacted]) at JX-0557C.16-22; JX-0562C (ACE CAD); RX-0934C [redacted] CAD); RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 544-553. [redacted]

3. The NJOY DI Systems deliver aerosolized solution, not vaporized solution to users for oral provision

For the same reasons discussed in Section IV.D.1.i.e.3 *supra*, the evidence will show that the Asserted Patents recognize the significant material differences between a vapor and an aerosol, and the patent chose to disclose and claim providing only a vaporized solution—not an aerosolized solution—"for oral provision to an individual." The evidence will show, and Dr. Vallee does not contest, that the NJOY DI Pods are also designed to deliver only an aerosol, not a vaporized solution, to an individual for oral provision. *See* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 554-560; CX-2157C (Vallee Opening Rpt.) at ¶¶ 1454, 1524 (citing to evidence stating that the NJOY DI Systems "produce aerosol"); JX-0558C (NJOY ACE PMTA, Sec 2.3.1), at JX-0558C.7, 10, 13-19; JX-0498C (NJOY [redacted] MIP App. A), at JX-0498C.7, 8, 13-15, 25, 28, 30-35; RX-

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1120C (Bonet Depo. Tr. 2024-03-06) at 30:24-31:3 (testifying that he does not believe aerosol and vapor to be interchangeable terms); 203:2-20 (testifying that aerosol exits the Pod through what Dr. Vallee identifies as the second aperture); RX-1115C (Hawes Depo. Tr.) at 24:11-17 (testifying that vapor is a gas, and aerosol is a combination of gas and liquid); 91:20-92:8 [redacted].

To the extent Dr. Vallee argues at the Hearing that the Asserted Claims are practiced so long as a vapor is created at some point in the process of delivering the solution, in some form, to the user, the evidence at the Hearing will prove otherwise. *See* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1994, 1997. The ALJ notes that "[w]ith respect to the phrase 'for oral provision to an individual in the airflow,' … one of ordinary skill in the art would recognize that this refers to the solution to be provided orally to a user" and further cites several portions of the '864 Patent disclosing that this limitation requires that the "resulting vapor" is what is provided to the individual – not merely that a vapor is created, or that a different form of solution, such as an aerosol, is provided to a user. *See* RX-1538 (Claim Construction Order (No. 36)) at RX-1538.33 (citing JX-0001 ('864 Patent) at 4:52–54 ("The heating element 126 outputs a sufficient amount of heat to vaporize at least a portion of the solution 128, and ***the user receives the vaporized solution*** orally.") (emphasis added); 5:23–25 ("[T]he user depresses a button to activate the heating element and draw ***the vaporized solution*** from the electronic vaporize 100.") (emphasis added); 6:56–58 ("The heating element 222 acts to vaporize the liquid solution in the absorbent material 204, and ***the resulting vapor*** is received by the user.") (emphasis added)). Dr. Vallee similarly argued in his claim construction declaration that it is not just any solution, but the vaporized solution, that is to be provided orally to a user. *See* RX-1023 (Vallee Declaration 2023-12-15) at ¶¶ 33-35. Dr. Vallee's argument that the form of the solution provided to the user is irrelevant so

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long as vapor is created at some point of the process of providing solution to the user is, therefore, unavailing.

Further, to the extent Dr. Vallee argues at the Hearing that the Asserted Claims are practiced because the aerosol provided by the NJOY DI Systems to the user includes the claimed vaporized solution, Dr. Vallee has provided no such evidence; nor will Dr. Vallee be able to provide any evidence that any solution is orally provisioned to users in the vapor form. *See* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1994, 1997; *see also* RX-1120C (Bonet Depo. Tr. 2024-03-06) at 200:11-12; 202:21-203:1. [redacted]. *See* JX-0558C (NJOY ACE PMTA, Sec 2.3.1), at JX-0558C.7, 10, 13-19; JX-0498C (NJOY [redacted] MIP App. A), at JX-0498C.7, 8, 13-15, 25, 28, 30-35; RX-1120C (Bonet Depo. Tr. 2024-03-06) at 30:24-31:3, 203:2-20; RX-1115C (Hawes Depo. Tr.) at 24:11-17, 91:20-92:8; *see also* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 554-560.

For at least these reasons, NJOY will be unable to prove that the NJOY DI Systems include the claimed "heating element being configured to vaporize at least a portion of the solution for oral provision to an individual in the airflow."

d. NJOY fails to show the NJOY DI Systems satisfy the substantially central and axial airflow path portions limitations

Asserted Claim 9 requires "a first portion of the airflow path proximate the first aperture being defined substantially centrally and axially with respect to the central longitudinal axis of the housing, and a second portion of the airflow path proximate to the second aperture being defined substantially centrally and axially with respect to the central longitudinal axis of the housing." *See*

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JX-0001 ('864 Patent), at Claim [9.7]. Here again Dr. Vallee is expected to use grossly over-simplified arrows, based on no analysis, testing, or other evidence, to show that the airflow through the alleged housing of the NJOY DI Pods follows an airflow path that includes two portions defined substantially centrally and axially with respect to the central longitudinal axis of the alleged housing. *See, e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1460-1463, 1530-1533. However, the evidence at the Hearing, including the testimony of JLI's expert Dr. Dahm, will show that the NJOY DI Systems do not practice the aforementioned airflow path portions limitations of the '864 Patent because (1) the alleged airflow paths are grossly over-simplified arrows positioned "without much science" and (2) the portions of the airflow are not substantially central and axial. *See, e.g.,* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 580-594; RPX-0012 – RPX-0015 (Physical Samples of NJOY DI Systems); JX-0498C (NJOY [redacted] MIP App. A); JX-0558C (NJOY ACE PMTA, Sec 2.3.1); JX-0557C (ACE [redacted]); JX-0562C (ACE CAD); RX-0934C ([redacted] CAD).

[redacted]

See CX-2157C (Vallee Opening Rpt.) at ¶ 1462 (citing JX-0558C (NJOY ACE PMTA, Sec 2.3.1), at JX-0558C.19); *see also* JX-0498C (NJOY [redacted] MIP App. A), at JX-0498C.35.

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[redacted]

1. Dr. Vallee fails to show the airflow from the alleged first aperture to the alleged second aperture because the grossly over-simplified arrows relied on by him were positioned "without much science"

To begin, Dr. Vallee will rely on arrows in cartoon figures in NJOY's PMTA as the airflow paths through the NJOY DI Pods. *See, e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1460-1463, 1530-1533. However, the evidence will show that those arrows do not show or even approximate the airflow through the alleged housing because they do not account for how the airflow enters the NJOY DI Pods through the alleged first aperture. *Id.;* JX-0558C (NJOY ACE PMTA, Sec 2.3.1) at JX-0558C.8-9, 13-20; JX-0498C (NJOY [redacted] MIP App. A) at JX-0498C.15, 28-37. [redacted]

RX-1120C (Bonet Depo. Tr. 2024-03-06) at 197:10-22.

[redacted]

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[redacted]

RX-1120C (Bonet Depo. Tr. 2024-03-06) at 201:23-202: 11 (objection omitted); *see also id.* at 197:1-18[redacted] CX-0202C (Bonet Exhibit 4).

[redacted]. *See e.g.,* JX-0558C (NJOY ACE PMTA, Sec 2.3.1) at JX-0558C.19; JX-0498C (NJOY [redacted] MIP App. A) at JX-0498C.35; JX-0557C (ACE [redacted] at JX-0557C.16; JX-0562C (ACE CAD); RX-0934C ([redacted] CAD); RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 428-429; 584; *see also* Section IV.D.2.i.h *supra*. [redacted]. *Id.*; RX-0918 (Fundamentals of Fluid Mechanics); RX-0915 (Pipe Flow Presentation).

Without any scientific evidence of how air actually flows through the NJOY DI Systems, Dr. Vallee and NJOY cannot meet their burden of proving that any airflow in the NJOY DI Pods behaves as required by independent claim 9.

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2. Dr. Vallee fails to show the first portion of the airflow path is substantially central and axial

As discussed in Section IV.D.2.i.h *supra*, a POSITA would understand the language of claim 9, especially when read in conjunction with the ALJ's claim construction order, to mean that "a first portion of the airflow path proximate the first aperture" is the first half of the airflow path between the first aperture to the midway point between the first and second aperture, and "a second portion of the airflow path proximate the second aperture" is the other half of the airflow path between the midway point and the second aperture.

Regardless of which "first portion" of the airflow path is determined to be the "first portion" as claim 9 describes, Dr. Vallee will be unable to show that the first portion of the airflow path in the NJOY DI Pods is substantially central and axial with respect to the central longitudinal axis of the housing. *See* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1460-1463, 1530-1533. ***First,*** Dr. Vallee will have to concede that the first portion/half of the airflow path (boxed in purple below) is not defined substantially centrally and axially with respect to the central longitudinal axis of the housing. *See* CX-2157C (Vallee Opening Rpt.) at ¶ 1532; *see also* JX-0558C (NJOY ACE PMTA, Sec 2.3.1), at JX-0558C.19; JX-0498C (NJOY [redacted] MIP App. A), at JX-0498C.35; RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶ 592-593.

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JX-0558C (NJOY ACE PMTA, Sec 2.3.1), at JX-0558C.19 (annotated); RX-0841C (Dahm Rebuttal Report) at RX-0841C.440, ¶ 8; *see also* JX-0498C (NJOY [redacted] MIP App. A), at JX-0498C.35. [redacted]. JX-0558C (NJOY ACE PMTA, Sec 2.3.1) at JX-0558C.18 [redacted] JX-0558C.13 [redacted] JX-0498C (NJOY [redacted] MIP App. A); RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 572-576. [redacted]. *Id.*; JX-0558C (NJOY ACE PMTA, Sec 2.3.1), at JX-0558C.19; JX-0498C (NJOY [redacted] MIP App. A), at JX-0498C.35.

Second, even if it is determined that the "first portion" of the airflow path in the NJOY DI Pods can be any length (however small), and assuming for the sake of argument that Dr. Vallee is

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able to rely on the "crude" arrows developed "without much science" as evidence of actual airflow in the NJOY DI Pods, the evidence will show that Dr. Vallee's alleged first portion of the airflow path is ***not*** substantially central and axial. *Id.* For example, as shown in the annotated figure below in the yellow boxes, the alleged first portion of the airflow path includes airflow paths that are not substantially central and axial to the central longitudinal axis of the housing. *See* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 592-593; *see also* RX-1120C (Bonet Depo. Tr. 2024-03-06) at 186:3-14, 193:23, 194:9, 196:16-25, 200:5-201:2. [redacted] JX-0558C (NJOY ACE PMTA, Sec 2.3.1), at JX-0558C.19; JX-0498C (NJOY [redacted] MIP App. A), at JX-0498C.35. [redacted]. *Id.*; RX-1120C (Bonet Depo. Tr. 2024-03-06) at 200:13-201:2.

[redacted]

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[redacted]

CX-2157C (Vallee Opening Rpt.) at ¶ 1462 (annotated in yellow; red and blue annotations by Dr. Vallee); *see also id.* at ¶ 1532.

None of the evidence Dr. Vallee relies upon, therefore, shows that the air is flowing substantially centrally and axially, even assuming the portion that Dr. Vallee alleges can be the claimed "first portion of the airflow path."

e. NJOY fails to show the NJOY DI Systems satisfy "the heating element extending transversely to a central longitudinal axis of the housing"

Asserted Claim 9 requires the claimed cartridge to have a "the heating element extending transversely to a central longitudinal axis of the housing." *See* JX-0001 ('864 Patent), at Claim [9.5]. Dr. Vallee is expected to argue at the Hearing that his alleged heating element, including the S-trace and the ceramic wick in combination, extends transversely to a central longitudinal axis of the housing as shown below. CX-2157C (Vallee Opening Rpt.) at ¶¶ 1448, 1518. However, Dr. Vallee has not provided any explanation on how his alleged heating element extends transversely to the central longitudinal axis of the alleged housing. *See, e.g., id.*; RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 562-571; RPX-0012 – RPX-0015 (Physical Samples of NJOY DI Systems); JX-0498C (NJOY [redacted] MIP App. A); JX-0558C (NJOY ACE PMTA, Sec 2.3.1); JX-0557C (ACE [redacted]); JX-0562C (ACE CAD); RX-0934C ([redacted] CAD). And for several different reasons, Dr. Vallee will not be able to demonstrate that his alleged heating element satisfies this limitation.

To begin, even if the ceramic wick is included as part of the claimed heating element (which, as discussed below, it cannot be), Dr. Vallee's claimed heating element does not extend ***transversely*** to the central longitudinal axis of the NJOY DI Pods. As explained, the ALJ construed the term "transversely" "to have its plain and ordinary meaning, that is, crosswise." RX-1538 (Claim Construction Order (No. 36)) at RX-1538.17. [redacted]

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[redacted]

[redacted]. CX-2309C (ACE CAD); RX-0934C [redacted] CAD); JX-0558C (NJOY ACE PMTA, Sec 2.3.1), at JX-0558C.18-19; JX-0498C (NJOY [redacted] MIP App. A).



JX-0562C (ACE CAD) (annotated in yellow and red); *see also* RX-0934C ([redacted] CAD). Thus, to the extent the NJOY DI Pods' wick and s-trace extend at all, they would extend parallel to the central longitudinal axis of the their housing, not transverse to it.

Further, for the reasons discussed in Section IV.F.2.i.c.1 *supra*, the ceramic wick cannot even be part of the claimed heating element and Dr. Vallee has not asserted that the S-trace by itself can be the claimed "heating element," let alone the heating element "extending transversely to a

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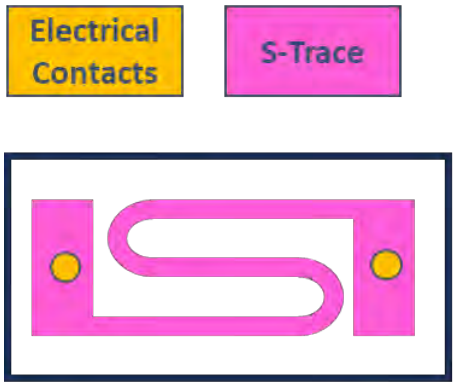
[redacted]

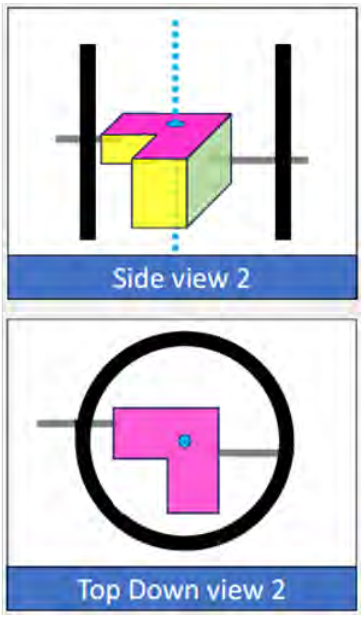
central longitudinal axis of the housing." However, even if Dr. Vallee were to be allowed to rely on the S-trace alone as the claimed "heating element," Dr. Vallee, however, has not, and will not be able to, provide any evidence that the S-trace itself extends transversely to the central longitudinal axis of the housing. *See* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶ 569; JX-0562C (ACE CAD); RX-0934C [redacted] CAD); JX-0558C (NJOY ACE PMTA, Sec 2.3.1), at JX-0558C.18-19; JX-0498C (NJOY [redacted] MIP App. A), at JX-0498C.34-35. [redacted]

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[redacted]

JX-0558C (NJOY ACE PMTA, Sec 2.3.1), at JX-0558C.18; JX-0498C (NJOY [redacted] MIP App. A), at JX-0498C.34. Therefore, similar to the V-shape that the ALJ determined does not extend transversely (as shown below on the right), the S-shaped trace heating element in the NJOY DI Pods (as illustrated below on the left) does not extend transversely to the central longitudinal axis of the housing, either. RX-1538 (Claim Construction Order (No. 36)) at RX-1538.16 ("'transversely' modifies how the heating element extends across the airflow passageway, that is, crosswise to it, as opposed to, for example, in a V-shape or radially").





f. NJOY fails to show the NJOY DI Systems satisfy "a heating element … being at least partially exposed to the airflow"

Asserted Claim 9 requires the claimed cartridge to have a "heating element … being at least partially exposed to the airflow." *See* JX-0001 ('864 Patent), at Claim [9.5]. Dr. Vallee is expected to argue at the Hearing that the NJOY DI Systems include an "airway [] designed such that the air flows around the atomizer." CX-2157C (Vallee Opening Rpt.), at ¶ 1449 (citing JX-0558C (NJOY ACE PMTA, Sec 2.3.1) at JX-0558C.18); *see also* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1445-1450, 1515-1520. However, Dr. Vallee has not and will not provide any

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[redacted]

explanation on how his alleged heating element is at least partially exposed to the airflow. *See, e.g.,* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 572-579; RPX-0012 – RPX-0015 (Physical Samples of NJOY DI Systems); JX-0498C (NJOY [redacted] MIP App. A); JX-0558C (NJOY ACE PMTA, Sec 2.3.1); JX-0557C (ACE [redacted]); JX-0562C (ACE CAD); RX-0934C [redacted] CAD).

As an initial matter, Dr. Vallee will fail to prove how air flows through the NJOY DI Systems because Dr. Vallee will, again, only rely on a single diagram (which NJOY's corporate representative Mr. Bonet conceded was, [redacted]) to explain the airflow in the NJOY DI Systems. *See* Sections IV.D.2.iii.f and IV.F.2.i.d *supra*; RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 572-579. As a result, Dr. Vallee cannot and will not provide any accurate explanations for how air actually flows in the NJOY DI Pods, much less how air in the NJOY DI Pods flow around, on, or otherwise in relation to the alleged heating element. *Id.*

Further, to the extent it is determined that the ceramic wick cannot be part of the claimed housing, the evidence relied on by Dr. Vallee does not support any allegation that the only remaining heating element, the S-trace, is partially exposed to the airflow. [redacted] *See* JX-0558C (NJOY ACE PMTA, Sec 2.3.1), at JX-0558C.18 (emphasis added); *see also* JX-0498C (NJOY [redacted] MIP App. A), at JX-0498C.34; RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 572-579. [redacted] *See* JX-0558C

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[redacted]

(NJOY ACE PMTA, Sec 2.3.1), at JX-0558C.19; JX-0498C (NJOY [redacted] MIP App. A), at JX-0498C.35; RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 572-579. [redacted]

JX-0558C (NJOY ACE PMTA, Sec 2.3.1) at JX-0558C.19; JX-0498C (NJOY [redacted] MIP App. A), at JX-0498C.35.

Other evidence corroborates that at least the general flow of vapor is away from the S-trace. *See e.g.,* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 572-579. [redacted] *Id.*; JX-0562C (ACE CAD); RX-0934 [redacted] CAD). [redacted] *See* RX-1120C (Bonet Depo. Tr. 2024-03-06) at 200:18-22 (emphasis added). Thus, to the extent Dr.

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[redacted]

Vallee continues to rely on the diagram above to explain how air flows through the NJOY DI Systems, Dr. Vallee fails to meet his burden of proving that the heating element (*i.e.*, the S-trace) is at least partially exposed to the airflow from the alleged first aperture.

g. NJOY fails to show the NJOY DI Systems satisfy Claim 10 (Dependent): "The cartridge of claim 9, further in combination with a power source adapted to be electrically coupled to the first end of the housing, the power source including a battery."

Asserted Claim 10 requires the cartridge of claim 9 to be "further in combination with a power source adapted to be electrically coupled to the first end of the housing, the power source including a battery". *See* JX-0001 ('864 Patent), at Claim 10. As discussed above with respect to independent claim 9, Dr. Vallee will be unable to establish that the NJOY DI Devices are adapted to be electrically coupled to the first end of the housing because the first end of the housing does not include the electrical contacts that Dr. Vallee identifies as the portion that electrically couples to the power source. *See supra* Section IV.F.2.i.b; *see also* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1464-1470, 1534-1540; RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 596-598; JX-0558C (NJOY ACE PMTA, Sec 2.3.1) at JX-0558C.8-20; JX-0498C (NJOY [redacted] MIP App. A), at JX-0498C.11, 39.

h. NJOY fails to show the NJOY DI Systems satisfy Claim 12 (Dependent): "The cartridge of claim 9, wherein the heating element includes a wicking material being operative to permit at least a portion of the solution to be held in the solution holding medium to be drawn toward the heating element to be vaporized."

Asserted Claim 12 requires the heating element of claim 9 to "include[] a wicking material being operative to permit at least a portion of the solution to be held in the solution holding medium to be drawn toward the heating element to be vaporized." *See* JX-0001 ('864 Patent), at Claim 12. Dr. Vallee will argue that his alleged heating element, i.e., the S-trace combined with the ceramic wick, includes a wicking material, i.e., the porous ceramic wick. *See e.g.,* CX-2157C (Vallee

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[redacted]

Opening Rpt.) at ¶¶ 1471-1473, 1541-1543. However, the evidence at the Hearing, including the testimony of JLI's expert Dr. Dahm, will show that the NJOY DI Systems do not practice claim 12 of the '864 Patent because, as discussed above, the ceramic wick cannot be part of the heating element, and further because the S-trace itself does not include any wicking material. *See, e.g.,* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 599-603; JX-0498C (NJOY [redacted] MIP App. A); JX-0558C (NJOY ACE PMTA, Sec 2.3.1); JX-0557C (ACE [redacted]); JX-0562C (ACE CAD); RX-0934C [redacted] CAD).

For example, as discussed above in Section IV.D.1.i.e.1, the Applicant expressly disclaimed that a heating element, which is not made of a wicking material but instead is in proximity to a separate wick, can satisfy this limitation. RX-0530 (Prosecution History of U.S. Patent Appl. 14/510,955 (U.S. Patent No. 8,897,628)) at RX-0530.126 ("Further while Thorens teaches a wick in proximity to its heating element, ***the heating element of Thorens does not include any form of wicking material*** which attracts the solution.") (emphasis added). [redacted] *See* JX-0558C (NJOY ACE PMTA, Sec 2.3.1), at JX-0558C.18; *see also* JX-0498C (NJOY [redacted] MIP App. A), at JX-0498C.34; RX-1120C (Bonet Depo. Tr. 2024-03-06) at 208:2-212:24; *see also* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 544, 548. Dr. Vallee, therefore, will be unable to establish that the heating element of the NJOY DI Systems (i.e., the S-trace alone) includes a wicking material as disclosed in the '864 Patent. [redacted] *See* RX-1120C (Bonet Depo. Tr. 2024-03-06) at 206:8-19 [redacted]

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[redacted]

[redacted] (emphasis added); *see also id.* at 15:7-16:2, 68:10-14, 209:1-14.

i. NJOY fails to show the NJOY DI Systems satisfy Claim 15 (Dependent): "The cartridge of claim 9, further comprising an airflow passageway in the housing, at least a portion of the airflow passageway extending centrally and axially with respect to the housing."

Asserted Claim 15 requires the cartridge of claim 9 to include "an airflow passageway in the housing, at least a portion of the airflow passageway extending centrally and axially with respect to the housing." *See* JX-0001 ('864 Patent), at Claim 15. Dr. Vallee will argue that the NJOY DI Systems include an airflow passageway shown below in blue with portions boxed in red extending centrally and axially with respect to the housing. *See e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1485-1488, 1555-1558. The evidence at the Hearing, including the testimony of JLI's expert Dr. Dahm, will show that the NJOY DI Systems do not practice claim 15 of the '864 Patent because Dr. Vallee fails to identify an airflow passageway with physical structures that are separate and distinct from the other claimed elements. *See, e.g.,* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 604-607; RPX-0012 – RPX-0015 (Physical Samples of NJOY DI Systems); JX-0498C (NJOY [redacted] MIP App. A); JX-0558C (NJOY ACE PMTA, Sec 2.3.1); JX-0557C (ACE [redacted]); JX-0562C (ACE CAD); RX-0934C ([redacted] CAD).

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[redacted]



Id. at ¶ 1487; *see also id*. at ¶ 1557.

First, Dr. Vallee fails to show an airflow passageway that is sperate and distinct from the alleged interior of the housing and the solution holding medium. Dr. Vallee is expected to rely on the tank of the NJOY DI Pods as part of the claimed "housing having an interior" (*see, e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶ 1430), the claimed "solution holding medium" (*see, e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶ 1434), and the claimed "airflow passageway" (*see, e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶ 1990). However, the asserted claims 9 and 15 require that the airflow passageway be separate and distinct from the solution holding medium and the interior of the housing. JX-0001 ('864 Patent), Claim 9 ("the cartridge comprising: a housing having an interior and a solution holding medium adapted to hold a solution"), Claim 15 ("The cartridge of claim 9, further comprising an airflow passageway in the housing"). The tank of the NJOY DI Pod therefore cannot be part of the airflow passageway, as NJOY claims, while at the same time being part of the interior of the housing and the solution holding medium. RX-0841C (Dahm Rebuttal

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[redacted]

Rpt. and Errata) at ¶¶ 604-607. NJOY and Dr. Vallee thus fail to point to an airflow passageway in the NJOY DI Pods that is separate and distinct from the alleged housing and solution holding medium, as required by the asserted claims. *Id.*

In rebuttal to JLI's argument that a solution holding medium as claimed must be separate and distinct from the claimed airflow passageway and claimed heating element, Dr. Vallee makes the strange claim that "JLI's reading of the claim would mean the claim requires a solution holding medium outside of the housing, which is clearly inconsistent with the teaching of the patents," and cites FIG. 2 of the '864 Patent in support. CX-2157C (Vallee Opening Rpt.) at ¶ 1990. Contrary to Dr. Vallee's assertion, and as noted above, the evidence will show that FIG. 2 of the '864 Patent clearly depicts a solution holding medium, airflow passageway, and housing formed by separate structures and the solution holding medium is inside the housing. *See supra* IV.F.3.i.a.1; *see also* JX-0001 ('864 Patent), at FIG. 2; *see also id.*, at 6:3-5 (disclosing that the solution holding medium 204 in FIG. 2 is an absorbent material); 5:51-54 (disclosing that an absorbent material can be "cotton, wool, polyester, a batting material, or some other suitable absorbent material," none of which are materials that the '864 Patent also discloses as forming or capable of forming the heating element 222, airflow passageway 214, housing 202, or other components).

Second, Dr. Vallee fails to identify "an airflow passageway" required by claim 15. CX-2157C (Vallee Opening Rpt.) at ¶¶ 1485-1488. The evidence will show that it is undisputed that the airflow passageway must be formed by a defined physical structure. *See* RX-1120C (Bonet Depo. Tr. 2024-03-06) at 119:17-122:25; *see also* RX-1530C (Vallee Reply Report on Infringement) (Vallee Reply Report on Infringement), at RX-1530C.67 (Dr. Vallee criticizing another expert for "exclusively focus[ing] on the path of air taken rather than identifying the structure of [a device's] airflow passageway"). However, Dr. Vallee has not, and will not,

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[redacted]

identify what specific structures form the alleged airflow passageway in the NJOY DI Pods. *See* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1485-1488. NJOY, therefore, will not be able to establish that the claimed airflow passageway exists within the NJOY DI Pods. *See also id.*; *see also* JX-0558C (NJOY ACE PMTA, Sec 2.3.1), at JX-0558C.19; JX-0498C (NJOY [redacted] MIP App. A), at JX-0498C.35.

Third, the region Dr. Vallee defines as the airflow passageway of the NJOY DI Systems includes the porous ceramic wick, which air cannot flow through. *See* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1485-1488; *see also* JX-0558C (NJOY ACE PMTA, Sec 2.3.1), at JX-0558C.19; JX-0498C (NJOY [redacted] MIP App. A), at JX-0498C.35. As Dr. Dahm will explain, at least the ceramic wick prevents the alleged airflow passageway from "extending centrally and axially with respect to the housing" as recited in dependent claim 15 because the wick must be part of the airflow passageway structure defining the boundary of the airflow passageway. *Id.*; RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶ 606.

For at least these reasons, NJOY will be unable to provide sufficient evidence to show that the NJOY DI Systems practice this additional claim limitation.

ii. VUSE Alto

NJOY asserts that RJR's Vuse Alto System practices claims 9, 10, 12, 13, 15, and 20 of the '864 Patent. However, the evidence will show that the Vuse Alto System does not practice any of the asserted claims of the '864 Patent, at least because NJOY fails to meet its burden of proving the Vuse Alto System satisfies the following limitations contained in each of the claims:

- "a housing having an interior";
- "a solution holding medium adapted to hold a solution";
- "the first end of the housing being adapted to electrically couple to the power source";

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[redacted]

- "the heating element being configured to vaporize at least a portion of the solution for oral provision to an individual in the airflow";
- "the airflow through the housing follows an airflow path, a first portion of the airflow path proximate the first aperture being defined substantially centrally and axially with respect to the central longitudinal axis of the housing, and a second portion of the airflow path proximate to the second aperture being defined substantially centrally and axially with respect to the central longitudinal axis of the housing"; and
- "the heating element extending transversely to a central longitudinal axis of the housing"; and
- "the heating element … being at least partially exposed to the airflow."

a. NJOY fails to show the Vuse Alto System satisfies the "a housing having an interior" limitation

To begin with, asserted Claim 9 requires "a housing having an interior." *See* JX-0001 ('864 Patent), at Claim [9.2]. Dr. Vallee is expected to opine at the Hearing that the Vuse Alto Cartridge includes "the Cartomizer Tube, Heater Holder, Thimble, and Cartomizer Bottom Cover components" that define the outer boundary of the alleged housing. *See* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1571-1574. However, the evidence will show that "the Cartomizer Tube, [redacted], and Cartomizer Bottom Cover components" do not meet the "housing" limitation because [redacted] are incorrectly included as part of the housing. *See, e.g.,* JX-0580C (Vuse Alto PMTA Sec. H); JX-0509C (Alto and Solo Graphics); RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 609-619.

[redacted]

CX-2157C (Vallee Opening Rpt.) at ¶ 1571.

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[redacted]

JLI expects NJOY and Dr. Vallee will seek to identify internal components such as the [redacted] as part of the alleged "housing". CX-2157C (Vallee Opening Rpt.) at ¶¶ 1571-1572, 1584-1585. But neither NJOY nor Dr. Vallee explains how or why these interior components (as shown below) are part of the "housing" of the Vuse Alto Cartridge; neither have they identified any intrinsic evidence, for example, that supports including these internal components within the scope of the alleged "housing." *See, e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1571-1572, 1584-1585; RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 616-618; JX-0580C (Vuse Alto PMTA, Sec H), at JX-0580C.33-36, 39-40. The evidence will show that [redacted] components are not outside structures that contain device internals; they are [redacted]. *Id.;* JX-0580C (Vuse Alto PMTA Sec. H), at JX-0580C.36 ([redacted]) (emphasis added); *id*. at JX-0580C.29-40, 77-80; JX-0509C (Alto and Solo Graphics).

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[redacted]



JX-0580C (Vuse Alto PMTA Sec. H), at JX-0580C.79 (annotated) ([redacted]).



JX-0509C (Alto and Solo Graphics), at JX-0509C.11 (annotated) ([redacted]).

As the evidence will also show, [redacted]. JX-0580C (Vuse Alto PMTA Sec. H), at JX-0580C.29-40, 77-80. Instead, [redacted]

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[redacted]. *Id.* at JX-0580C.35, 77-78. [redacted] *Id.* at JX-0580C.77.

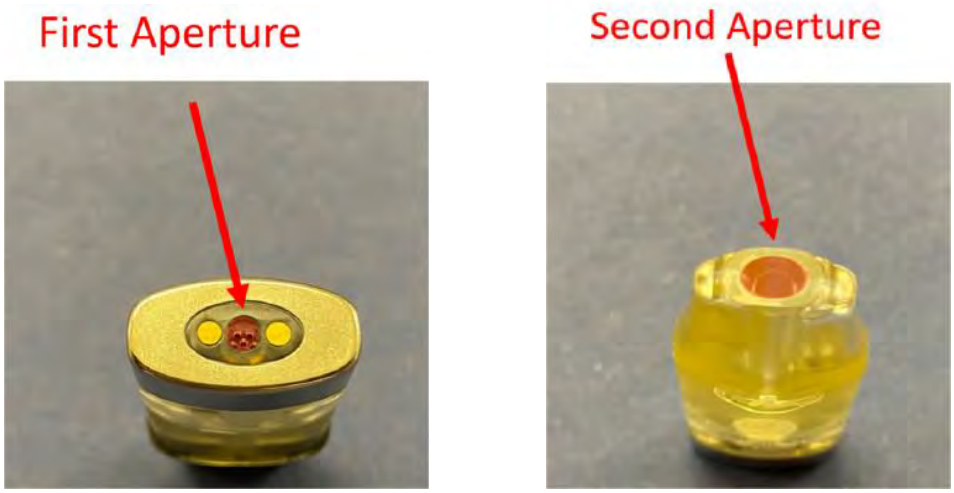
NJOY and Dr. Vallee have not alleged that the outer boundary of the "housing" is defined by the Cartomizer Tube and the Cartomizer Bottom Cover. *See e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1571-1574. Therefore, NJOY and Dr. Vallee fail to meet their burden of proving the Vuse Alto System satisfies the "a housing" limitations of the '864 Patent.

b. NJOY fails to show the Vuse Alto System satisfies "the housing having a first end and a second end that is opposite the first end, the housing having a first aperture proximate the first end and a second aperture proximate the second end" limitation

Asserted Claim 9 requires the claimed cartridge to have "a housing … having a first end and a second end that is opposite the first end, the housing having a first aperture proximate the first end and a second aperture proximate the second end". *See* JX-0001 ('864 Patent), at Claim [9.2]. Dr. Vallee is expected to opine at the Hearing that the first end is the bottom surface of the Vuse Alto Cartridge," "the second end is formed by the proximal end of the Cartomizer Tube," "the first aperture is the air inlet hole at the bottom surface of the heating holder," and "the second aperture is the air outlet at the proximal surface of the cartomizer tube." CX-2157C (Vallee Opening Rpt.) at ¶¶ 1577-1581.

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[redacted]



Id. at ¶¶ 1580 (left), 1581 (right).

However, as noted above, because [redacted] is an internal structure and cannot form part of the claimed housing, Dr. Vallee's alleged "first aperture" cannot satisfy the claimed "first aperture" as it is not part of the housing of the Vuse Alto Cartridge. *See supra* Section IV.F.2.ii.a; *see also* JX-0580C (Vuse Alto PMTA Sec. H), at JX-0580C.33-36; RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 620-623.

Therefore, NJOY and Dr. Vallee fail to meet their burden of proving that the alleged first end, first aperture, second end, and second aperture satisfy "the housing having a first end and a second end that is opposite the first end, the housing having a first aperture proximate the first end and a second aperture proximate the second end" limitation. Further, NJOY and Dr. Vallee have not alleged that the openings in the Atomizer Bottom Cover as the first aperture. *See e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1577-1581.

c. NJOY fails to show the Vuse Alto System satisfies "a solution holding medium adapted to hold a solution"

Asserted Claim 9 requires the claimed cartridge to have "a housing having an interior and a solution holding medium adapted to hold a solution…". *See* JX-0001 ('864 Patent), at Claim

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[redacted]

[9.2]. JLI expects Dr. Vallee to assert that the Cartomizer Tube is the claimed "solution holding medium." *See* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1575-1576. However, the evidence will show that the Cartomizer Tube cannot satisfy the "solution holding medium" limitation because [redacted]. *See, e.g.,* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 624-630; JX-0580C (Vuse Alto PMTA Sec. H), at JX-0580C.26-41, 108-118; JX-0509C (Alto and Solo Graphics).

[redacted]

RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶ 1575.

First, the evidence at the Hearing, including testimony from JLI's expert Dr. Dahm, will show that the Cartomizer Tube, specifically, [redacted]. *See* JX-0580C (Vuse Alto PMTA Sec. H), at JX-0580C.33, 37, 79; *see also* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶ 627. [redacted] *Id.*

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[redacted]

Second, Dr. Vallee cannot include the Cartomizer Tube as part of the solution holding medium because he has already identified the Cartomizer Tube as forming other claimed components of the claimed cartridge, such as the "housing having an interior" and the "airflow passageway." *Id*. at ¶¶ 1629-1632; Sections IV.F.2.ii.a and IV.F.2.ii.c *supra*. Indeed, the asserted claims are clear that the claimed "solution holding medium" must be separate and distinct from both the claimed "interior" of the housing and from the "airflow passageway." *See e.g.,* JX-0001 ('864 Patent), claim 9 ("the cartridge comprising: a housing having an interior and a solution holding medium adapted to hold a solution …"); claim 15 ("The cartridge of claim 9, further comprising an airflow passageway in the housing,").

Dr. Vallee will argue that JLI's requirement of having a solution holding medium separate from the interior of the housing would require "a solution holding medium outside of the housing." *See* CX-2157C (Vallee Opening Rpt.) at ¶ 2019. But the evidence will show that having a solution holding medium separate from the interior of the housing is well supported by the claim and the disclosure of the '864 Patent. *See also generally* JX-0001 ('864 Patent). For example, FIG. 2 of the '864 Patent and accompanying disclosure, contrary to Dr. Vallee's assertion, clearly depicts a solution holding medium (i.e., an absorbent material 204) being an entirely separate material and structure from each of the housing 202 and its interior, heating element 222, airflow path, airflow passageway 214, and other components. JX-0001 ('864 Patent) at FIG. 2, 5:65-8:25, Claim 9.

Therefore, NJOY and Dr. Vallee fail to meet their burden of proof to show that the Cartomizer Tube or the cavity therein satisfies "a solution holding medium adapted to hold a solution" limitation.

Noticeably, while Dr. Vallee concedes that multiple components may structurally define the boundary of the solution holding medium so that it can be adapted to hold a solution, he has

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[redacted]

not identified any other components of the Vuse Alto Cartridge as forming the alleged solution holding medium. *See* CX-2157C (Vallee Opening Rpt.) at ¶ 2018.

d. NJOY fails to show the Vuse Alto System satisfies "the first end of the housing being adapted to electrically couple to the power source"

Asserted Claim 9 requires the claimed cartridge to have a "first end of the housing being adapted to electrically couple to the power source." *See* JX-0001 ('864 Patent), at Claim [9.3]. JLI expects Dr. Vallee to assert that [redacted] are part of the first end of the housing and is adapted to electrically couple to the power source. *See, e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1584-1585, 1611-1612. However, as discussed above, [redacted] cannot be part of the claimed "housing" of the Vuse Alto Cartridge. *See* Section IV.F.2.ii.a *supra*; RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 631-632 Therefore, NJOY and Dr. Vallee fail to meet their burden to show that the Vuse Alto System satisfies "the first end of the housing being adapted to electrically couple to the power source." *Id.* Further, Dr. Vallee has not asserted that the bottom surface of the Cartomizer Bottom Cover is adapted to electrically couple to the power source. *See, e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1571-1586. He cannot because the Vuse Alto Cartridge [redacted]. *See e.g.,* JX-0580C (Vuse Alto PMTA Sec. H), at JX-0580C.15-40.

e. NJOY fails to show the Vuse Alto System satisfies "heating element being configured to vaporize at least a portion of the solution for oral provision to an individual in the airflow"

Asserted Claim 9 requires the claimed cartridge to have a "heating element being configured to vaporize at least a portion of the solution for oral provision to an individual in the airflow". *See* JX-0001 ('864 Patent), at Claim [9.6]. JLI expects Dr. Vallee to assert that [redacted] applied onto a "[redacted] wick" of the VUSE Alto Cartridge satisfies the claimed "heating element." *See* CX-2157C (Vallee Opening Rpt.) at ¶ 1592. However, the evidence will

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[redacted]

show that NJOY and Dr. Vallee cannot meet their burden of proof because (1) [redacted] wick cannot be part of the claimed "heating element"; and (2) [redacted] *See e.g.,* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 633-645; JX-0580C (Vuse Alto PMTA Sec. H), at JX-0580C.26-41, 108-118; JX-0509C (Alto and Solo Graphics).

[redacted]

CX-2157C (Vallee Opening Rpt.) at ¶ 1592.

1. The wick cannot be part of the claimed "heating element"

The evidence at the Hearing will show that for the same reasons discussed in Sections IV.B.4, IV.D.1.i.e.1, and IV.F.2.i.c.(1) *supra*, the [redacted] wick cannot be part of the claimed "heating element" because it does not itself output heat and because the asserted claims do not allow a wick that is separate from the heating element to be part of the claimed heating element. *See e.g.,* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶ 638. The ALJ has also provided guidance that the "heating element" as recited in claim 9 of the '864 Patent must "receive[] power from a power source." *Id*. at JX-0001.40-41. However, the evidence will show that the ceramic wick is

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[redacted]

JX-0580C (Vuse Alto PMTA, Sec H), at JX-0580C.15-40, 76-80.

Further, the evidence will show that the wick in the Vuse Alto Cartridge is made of [redacted] under NJOY's proposed construction (if not subject to § 112 (6)). *Id.* The evidence will also show that the [redacted] wick in the NJOY DI Pods does not generate heat and therefore cannot "perform heating" or "output heat" under JLI's proposed construction (if not subject to § 112 (6)). *Id.* The evidence will further show that because the wick is made of [redacted] it is not a "conductive material that, in response to current, outputs heat to vaporize at least a portion of the solution for oral provision to an individual in the airflow" under Staff's proposed construction (if not subject to § 112 (6)). *Id*. Neither NJOY nor Dr. Vallee has put forth any evidence that the [redacted] wick in the Vuse Alto Cartridge comprises a conductive material, receives any current or power from a power source, or outputs heat. *See e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1590-1604.

Because the alleged heating element ([redacted] wick) cannot satisfy the claimed "heating element," and Dr. Vallee has not asserted that the [redacted] alone can satisfy the claimed "heating element," Dr. Vallee has failed his burden of proving that the Vuse Alto Cartridge satisfies the aforementioned "heating element …" limitation.

However, even if Dr. Vallee were to allege that the [redacted] alone satisfies the aforementioned "heating element …" limitation, which he has not and cannot do so at the hearing, the evidence will show that the [redacted] alone cannot meet the "heating element …" limitation.

2. The [redacted] is not "configured to vaporize at least a portion of the solution" held in the solution holding medium

Claim 9 of the '864 Patent requires the heating element to be configured to vaporize "at least a portion of ***the solution***" held in the solution holding medium. JX-0001 ('864 Patent), Claim

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[redacted]

9; Section IV.D.1.i.e.2 *supra*. As Dr. Dahm will explain, [redacted]. *See, e.g.,* JX-0580C (Vuse Alto PMTA, Sec H) at JX-0580C.31, 34; *see also* RX-1120C (Bonet Depo. Tr. 2024-03-06) at 208:3-212:24; RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶ 640. The evidence at the Hearing will show that [redacted]. JX-0580C (Vuse Alto PMTA Sec. H), at JX-0580C.15-40, 76-80. Rather, [redacted]. *Id.* at JX-0580C.34 ([redacted]). It is therefore not configured to heat or vaporize any portion of the solution held in the alleged solution holding medium (*i.e.*, the cavity of the Cartomizer Tube). *Id*.

3. The Vuse Alto Cartridge delivers [redacted] to users for oral provision

For the same reasons discussed in Sections IV.D.1.i.e.3 and IV.F.2.i.c.3 *supra*, the evidence will show that the Asserted Patent recognizes the significant material differences between a vapor and an aerosol, and the patent chose to disclose and claim providing only a vaporized solution—not an aerosolized solution—"for oral provision to an individual." The evidence will show, and Dr. Vallee does not contest, similar to the NJOY ACE Products and the Accused JLI Products, that [redacted]. *See, e.g.,* JX-0580C (Vuse Alto PMTA, Sec H), at JX-0580C.31 [redacted], JX-0580C.33 [redacted]

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[redacted], 36 [redacted]; *see also* CX-2157C (Vallee Opening Rpt.) at ¶ 1599 [redacted].

To the extent Dr. Vallee argues at the Hearing that the Asserted Claims are practiced so long as a vapor is created at some point in the process of delivering the solution, in some form, to the user, the evidence at the Hearing will prove otherwise. *See e.g.,* Sections IV.D.1.i.e.3 and IV.F.2.i.c.3 *supra*.

Further, Dr. Vallee provides no evidence that RJR's technical documentation is incorrect, that any vapor is ever actually provided to a user of the Vuse Alto System (theoretically or in practice), or that the Vuse Alto System is designed or intended to supply a vapor "for oral provision to an individual," as required by the asserted claim 9. CX-2157C (Vallee Opening Rpt.) at ¶¶ 1599-1604. Thus, the evidence does not support Dr. Vallee's argument that the Vuse Alto System practices the claimed "heating element being configured to vaporize at least a portion of the solution for oral provision to an individual in the airflow."

f. NJOY fails to show the Vuse Alto System satisfies the substantially central and axial airflow path portions limitations

Asserted Claim 9 requires the claimed cartridge to have a "a first portion of the airflow path proximate the first aperture being defined substantially centrally and axially with respect to the central longitudinal axis of the housing, and a second portion of the airflow path proximate to the second aperture being defined substantially centrally and axially with respect to the central longitudinal axis of the housing". *See* JX-0001 ('864 Patent), at Claim [9.7]. Here again, Dr. Vallee is expected to allege at the Hearing that the Vuse Alto Cartridge includes an airflow path with two portions as shown below. *See* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1605-1608. However, the

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[redacted]

evidence will show that the arrows do not represent the actual airflow path in the Vuse Alto Cartridge and the Vuse Alto Cartridge does not includes the claimed portions of the airflow path. *See e.g.,* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 655-662; JX-0580C (Vuse Alto PMTA Sec. H), at JX-0580C.26-41, 108-118; JX-0509C (Alto and Solo Graphics).



See CX-2157C (Vallee Opening Rpt.) at ¶ 1607 (the annotation by Dr. Vallee likely includes a typo where the "second portion of airflow" on the right should be replaced with "first portion of airflow").

1. Dr. Vallee fails to show the airflow from the alleged first aperture to the alleged second aperture because the grossly over-simplified arrows relied on by him do not represent the actual airflow in the cartridge

As a general matter, and similar to the discussion above with respect to the NJOY ACE Products, the evidence at the Hearing will show that the air flow arrows in the figure above are grossly over-simplified and do not represent the actual airflow path in the Vuse Alto Cartridge. *See*

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[redacted]

e.g., Sections IV.D.2.i.h and IV.F.2.i.d.1 *supra*; RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 655-662; JX-0580C (Vuse Alto PMTA Sec. H), at JX-0580C.26-41, 108-118; JX-0509C (Alto and Solo Graphics). In fact, the airflow in the Vuse Alto Cartridge is unlikely to actually flow exactly, or even in a usefully similar way, as depicted in this diagram, for several reasons. *See, e.g.,* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 658-661; RX-0924 ("Computational Fluid Dynamics Study…"); RX-0917 ("Flow-Pressure Drop Characteristics of Perforated Plates"); RX-0916 ("Numerical Modelling of the Gas Flow…"); Sections IV.D.2.i.h and IV.F.2.i.d.1 *supra*. For example, as Dr. Dahm will explain, due to the many geometric features of at least the heater top cover, silicon seals, heater subassembly, heating holder, and the juncture between these components and the integrated tube (all of which affect the flow path, including providing its unsteady and turbulent flow characteristics), there are numerous flow paths from the alleged first aperture to the alleged second aperture that are far more intricate than that shown by Dr. Vallee. *Id*. A POSITA would expect the flow between the alleged first aperture and integrated tube to be unsteady and therefore to follow a far wider range of more geometrically complex streamlines than those shown by Dr. Vallee's diagram above. *Id.*

For example, as Dr. Dahm will explain, air flowing through multiple openings into an open cavity downstream from the air inlets (such as that in the Vuse Alto Cartridge) will create a recirculation zone between the openings that will prevent air from flowing in a central or axial manner through the Pod. *See* JX-0580C (Vuse Alto PMTA Sec. H) at JX-0580C.37; RX-0924 ("Computational Fluid Dynamics Study…"); RX-0917 ("Flow-Pressure Drop Characteristics of Perforated Plates…"); RX-0916 ("Numerical Modelling of the Gas Flow…"); *see also* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 660-661. Further, [redacted], as well as other objects such as the heater

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assembly and other features, can also prevent air from flowing in a substantially central or axial manner. *See* RX-0924 ("Computational Fluid Dynamics Study…"); RX-0917 ("Flow-Pressure Drop Characteristics of Perforated Plates…"); RX-0916 ("Numerical Modelling of the Gas Flow…"); *see also* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 658-659. As the evidence will show, each of these features or flow phenomena affect the flow path of air in the Vuse Alto Cartridge and would cause unsteady and turbulent flow characteristics that cause the actual flow paths to be numerous and far more intricate than the simple path suggested by Dr. Vallee. *Id.* Dr. Vallee will not, however, provide any evidence (including simulations or testing) to prove that air flowing through the Vuse Alto Cartridge is unaffected by these factors and would still flow substantially centrally and axially through any portion of the Vuse Alto Cartridge, as required by claim 9.

Therefore, merely relying on the over-simplified airflow path diagram, Dr. Vallee cannot possibly meet his burden of prove to show that "a first portion of the airflow path proximate the first aperture being defined substantially centrally and axially with respect to the central longitudinal axis of the housing, and a second portion of the airflow path proximate to the second aperture being defined substantially centrally and axially with respect to the central longitudinal axis of the housing."

2. Dr. Vallee fails to show the two portions of the airflow path are substantially central and axial

Even assuming for the sake of argument that Dr. Vallee is able to rely on the diagram above as evidence of actual airflow in the Vuse Alto Cartridge, despite providing no evidence corroborating the alleged airflow, Dr. Vallee's inconsistent positions as to what an "airflow path" that is "proximate" an aperture would be made most obvious in his identification of the alleged first and second portions of the airflow path. RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶

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[redacted]

655-662; JX-0580C (Vuse Alto PMTA Sec. H), at JX-0580C.26-41, 108-118; JX-0509C (Alto and Solo Graphics). However, regardless how Dr. Vallee interprets "proximate" to mean, Dr. Vallee cannot show the first portion of the airflow path is substantially central and axial. *Id.*



See CX-2157C (Vallee Opening Rpt.) at ¶ 1607 (citing JX-0580C (Vuse Alto PMTA Sec. H) at JX-0580C.37) (annotated in orange, blue, and pink; other annotations by Dr. Vallee).

First, Dr. Vallee provides no explanation of how he selects the alleged first and second portions of the airflow path, much less how either is an airflow path "proximate" its respective aperture. Dr. Vallee's identification of both portions of the airflow path is wholly inconsistent with the ALJ's construction of the term "proximate," which is construed to mean "at, near, or close to, which in the context of the '864 patent claims identifies relative positioning." RX-1538 (Claim Construction Order (No. 36)) at RX-1538.12-13. In the context of the '864 Patent, Dr. Dahm will testify that a POSITA would understand the language of claim 9, especially when read in conjunction with the ALJ's claim construction order, to mean that "a first portion of the airflow path proximate the first aperture" is the first half of the airflow path between the first aperture to the midway point between the first and second aperture, and "a second portion of the airflow path

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[redacted]

proximate the second aperture" is the other half of the airflow path between the midway point and the second aperture. *See e.g.,* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶ 662; *see also* RX-1013C (Vallee Depo. Tr. 2023-12-23) at 51:4-17; 81:19-82:19; 21-274:12-275:9; see also CX-0239 (Markman Hearing Transcript) at 13:22-14:4; RX-1023 (Declaration of Glenn Vallee) at ¶¶ 20-21.

Second, when claim 9 is interpreted consistent with the claim construction order, it is undisputed that Dr. Vallee's alleged "second portion of the airflow path" cannot be the claimed "second portion of the airflow path," as the portion (highlighted in pink above) of Dr. Vallee's alleged second portion of the airflow path is closer to his alleged first aperture than to his alleged second aperture. CX-2157C (Vallee Opening Rpt.) at ¶ 1607. Dr. Vallee's interpretation of whether an airflow path is "proximate" an aperture would, therefore, render the "relative position" component of the construed term meaningless. *Id.*; JX-0580C (Vuse Alto PMTA Sec. H), at JX-0580C.37.

Third, when claim 9 is interpreted consistent with the claim construction order, it is also undisputed that the Vuse Alto Cartridge lacks two portions of the airflow path that are substantially central or axial. For example, Dr. Vallee will have to concede that the first portion of the airflow path proximate to the first aperture (the portion highlighted in orange above) is not substantially central or axial with respect to the central longitudinal axis of the housing [redacted]. *See* CX-2157C (Vallee Opening Rpt.) at ¶ 1532; JX-0580C (Vuse Alto PMTA Sec. H) at JX-0580C.34, 37; RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶ 662.

Additionally, selecting a portion of the airflow path as small as Dr. Vallee has identified for the alleged first portion of the airflow path would render the "portion of the airflow path" limitation meaningless and nonsensical; the claim must require some minimum distance that the airflow path

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[redacted]

must travel centrally and axially between the first and second apertures. *See e.g.,* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶ 662. Dr. Vallee will offer no such minimum distance, or any rationale as to why he selected the limited portion of the airflow path as satisfying the claimed "first portion of the airflow path."

g. NJOY fails to show the Vuse Alto System satisfies "the heating element extending transversely to a central longitudinal axis of the housing"

Asserted Claim 9 requires the claimed cartridge to have a "the heating element extending transversely to a central longitudinal axis of the housing." *See* JX-0001 ('864 Patent), at Claim [9.5]. Dr. Vallee is expected to argue at the Hearing that his alleged heating element, including the [redacted] and the [redacted] wick in combination, extends transversely to a central longitudinal axis of the housing as shown below. CX-2157C (Vallee Opening Rpt.) at ¶ 1593. However, Dr. Vallee has not provided any explanation on how his alleged heating element extends transversely to the central longitudinal axis of the alleged housing. *Id*. In fact, the evidence will show that his alleged heating element [redacted]. *See, e.g.,* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 646-652; JX-0580C (Vuse Alto PMTA Sec. H) at JX-0580C.26-41, 77, 108-118; JX-0509C (Alto and Solo Graphics). And for several different reasons, Dr. Vallee will not be able to demonstrate that his alleged heating element satisfies this limitation. *Id.*

To begin, even if the [redacted] wick is included as part of the claimed heating element (which, as discussed below, it cannot be), Dr. Vallee's claimed heating element does not extend ***transversely*** to the central longitudinal axis of the Vuse Alto Cartridge. As explained, the ALJ construed the term "transversely" "to have its plain and ordinary meaning, that is, crosswise." RX-1538 (Claim Construction Order (No. 36)) at RX-1538.17. But as shown in the below figure, Dr. Vallee's alleged heating element [redacted]

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[redacted]

[redacted]. JX-0580C (Vuse Alto PMTA Sec. H) at JX-0580C.26-41, 77, 108-118; JX-0509C (Alto and Solo Graphics).

[redacted]

Id. (annotated in green and red). Thus, to the extent the Vuse Alto Cartridge's wick and [redacted] extend at all, they would extend parallel to the central longitudinal axis of the the housing, not transverse to it.

Further, for the reasons discussed in Section IV.F.2.ii.e.1 *supra*, the [redacted] wick cannot even be part of the claimed heating element and Dr. Vallee has not asserted that the [redacted] by itself can be the claimed "heating element," let alone the heating element "extending transversely to a central longitudinal axis of the housing." CX-2157C (Vallee Opening Rpt.) at ¶¶ 1590-1595; RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 646-652; JX-0580C (Vuse Alto PMTA Sec. H) at JX-0580C.26-41, 77, 108-118; JX-0509C (Alto and Solo Graphics). However, even if Dr. Vallee were to be allowed to rely on the [redacted] as the claimed "heating element," Dr. Vallee, however, has not, and will not be able to, provide any evidence that the [redacted] extends transversely to the central longitudinal axis of the housing. *See* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 650-651; JX-0580C (Vuse Alto PMTA Sec. H) at JX-0580C.30-38. [redacted]

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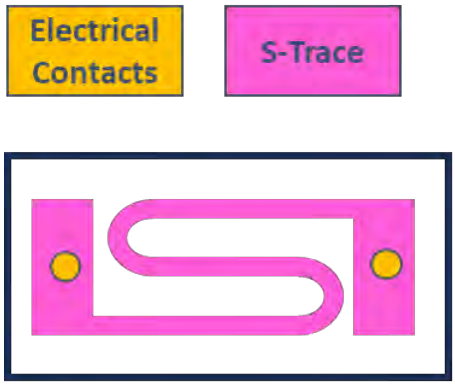
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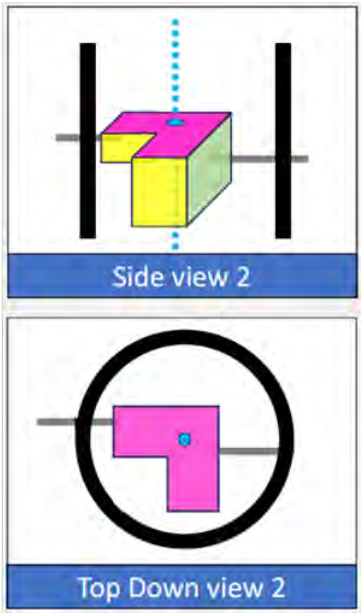


JX-0580C (Vuse Alto PMTA Sec. H), at JX-0580C.34. Therefore, similar to the V-shape that the ALJ determined does not extend transversely (as shown below on the right), [redacted] heating element in the Vuse Alto Cartridges (as illustrated below on the left) does not extend transversely to the central longitudinal axis of the housing, either. RX-1538 (Claim Construction Order (No. 36)) at RX-1538.16 ("'transversely' modifies how the heating element extends across the airflow passageway, that is, crosswise to it, as opposed to, for example, in a V-shape or radially").

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[redacted]





h. NJOY fails to show the Vuse Alto System satisfies "a heating element … being partially exposed to the airflow"

Asserted Claim 9 requires the claimed cartridge to have a "heating element … being at least partially exposed to the airflow". *See* JX-0001 ('864 Patent), at Claim [9.5]. Dr. Vallee is expected to argue at the Hearing that his alleged heating element, including the [redacted] and the [redacted] wick, "is at least partially exposed to the airflow." CX-2157C (Vallee Opening Rpt.) at ¶¶ 1592-1595. However, for the reasons discussed in Section IV.F.2.ii.e.1, the [redacted] wick cannot be part of the claimed heating element and Dr. Vallee has not asserted that the [redacted] alone can be the claimed "heating element."

However, even if Dr. Vallee were to be allowed to rely on the [redacted] as the claimed "heating element," Dr. Vallee, however, has not, and will not be able to, provide any evidence that the [redacted] is exposed, even in part, to the airflow from the first aperture. *See* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1592-1595; RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 653-654; JX-0580C (Vuse Alto PMTA Sec. H), at JX-0580C.26-41, 108-118; JX-0509C (Alto and Solo Graphics). For example, Dr. Vallee will rely on a "Vuse Alto Cartridge Air Flow Path" figure that

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[redacted]

only provides a high-level depiction of airflow trajectory. *Id.* For reasons discussed in Sections IV.F.2.i.d.1 and IV.F.2.ii.f.1 *supra*, the arrows in the "Vuse Alto Cartridge Air Flow Path" figure are grossly over-simplified and absent any other evidence or analysis, does not show how the air actually flows through the Vuse Alto Cartridge. *See e.g.,* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 653-654; JX-0580C (Vuse Alto PMTA Sec. H), at JX-0580C.26-41, 108-118; JX-0509C (Alto and Solo Graphics). Dr. Vallee will not provide any evidence or analysis showing the actual airflow through the Vuse Alto Cartridge, not to mention whether the [redacted] is exposed to the airflow from the alleged first aperture. *Id.* This is because to determine how the air coming out of the alleged first aperture flows around the [redacted] and [redacted] wick would require significant computational simulation based on CAD files of the Vuse Alto Cartridges or testing of the Vuse Alto Cartridge, which RJR has not produced and Dr. Vallee has not performed and will not provide at the Hearing. RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 653-654.

i. NJOY fails to show the Vuse Alto System satisfies Claim 10 (Dependent): "The cartridge of claim 9, further in combination with a power source adapted to be electrically coupled to the first end of the housing, the power source including a battery."

Asserted Claim 10 requires the cartridge of claim 9 to be "further in combination with a power source adapted to be electrically coupled to the first end of the housing, the power source including a battery". *See* JX-0001 ('864 Patent), at Claim 10. As discussed above with respect to independent claim 9, Dr. Vallee will be unable to establish that the Vuse Alto Devices are adapted to be electrically coupled to the first end of the housing because [redacted]. *See supra* IV.F.3.ii.d; *see also* CX-2157C (Vallee Opening Rpt.) at ¶ 1609-1614; RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶ 664; JX-0580C (Vuse Alto PMTA Sec. H) at 20, 23, 24.

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[redacted]

j. NJOY fails to show the Vuse Alto System satisfies Claim 12 (Dependent): "The cartridge of claim 9, wherein the heating element includes a wicking material being operative to permit at least a portion of the solution to be held in the solution holding medium to be drawn toward the heating element to be vaporized."

Asserted Claim 12 requires the heating element of claim 9 to include "a wicking material being operative to permit at least a portion of the solution to be held in the solution holding medium to be drawn toward the heating element to be vaporized". *See* JX-0001 ('864 Patent), at Claim 12. Dr. Vallee will argue that his alleged heating element, i.e., the [redacted] combined with the [redacted] wick, includes a wicking material, i.e., [redacted]. *See e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1615-1620. The evidence at the Hearing, including the testimony of JLI's expert Dr. Dahm, will show that NJOY fails to prove that the Vuse Alto System practices claim 12 of the '864 Patent because, as discussed above, the [redacted] wick cannot be part of the heating element, and further [redacted]. *See, e.g.,* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 665-666; JX-0580C (Vuse Alto PMTA Sec. H), at JX-0580C.26-41, 108-118; JX-0509C (Alto and Solo Graphics).

For example, as discussed above in Section IV.D.1.i.e.1, the Applicant expressly disclaimed that a heating element, which is not made of a wicking material but instead is in proximity to a separate wick, can satisfy this limitation. RX-0530 (Prosecution History of U.S. Patent Appl. 14/510,955 (U.S. Patent No. 8,897,628)) at RX-0530.129 ("Further while Thorens teaches a wick in proximity to its heating element, ***the heating element of Thorens does not include any form of wicking material*** which attracts the solution.") (emphasis added). [redacted] RX-1120C (Bonet Depo. Tr. 2024-03-06) at 206:8-19. Dr. Vallee, therefore, will be unable to establish that the heating element of the Vuse Alto Systems (i.e., the [redacted] alone) includes a wicking material as disclosed in the '864 Patent. Further, the

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[redacted]

evidence will also show that, similar to the ceramic wick in the NJOY DI Pods, the [redacted] wick in the Vuse Alto Cartridge, [redacted]. *See* RX-1120C (Bonet Depo. Tr. 2024-03-06) at 206:8-19; *see also supra* Section IV.F.2.i.h.

k. NJOY fails to show the Vuse Alto System satisfies Claim 15 (Dependent): "The cartridge of claim 9, further comprising an airflow passageway in the housing, at least a portion of the airflow passageway extending centrally and axially with respect to the housing."

Asserted Claim 15 requires the cartridge of claim 9 to include "airflow passageway in the housing, at least a portion of the airflow passageway extending centrally and axially with respect to the housing." *See* JX-0001 ('864 Patent), at Claim 15. Dr. Vallee will argue that the NJOY DI Systems include an airflow passageway shown below in green with two portions extending centrally and axially with respect to the housing. *See e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1629-1632. The evidence at the Hearing, including the testimony of JLI's expert Dr. Dahm, will show that the Vuse Also System does not practice claim 15 of the '864 Patent because Dr. Vallee fails to identify an airflow passageway with physical structures that are separate and distinct from the other claimed elements. *See, e.g.,* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 667-669; JX-0580C (Vuse Alto PMTA Sec. H), at JX-0580C.26-41, 108-118; JX-0509C (Alto and Solo Graphics).

First, Dr. Vallee fails to show an airflow passageway that is sperate and distinct from the alleged interior of the housing and the solution holding medium. Dr. Vallee is expected to rely on the Cartomizer Tube of the Vuse Alto Cartridge as part of the claimed "housing having an interior" (*see, e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶ 1571), the claimed "solution holding medium" (*see, e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1575-1576), and the claimed "airflow passageway" (*see, e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1629-1632).

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[redacted]



CX-2157C (Vallee Opening Rpt.) (Vallee Opening Rpt.) at ¶ 1631.

However, the asserted claims 9 and 15 require that the airflow passageway be separate and distinct from the solution holding medium and the interior of the housing. JX-0001 ('864 Patent), Claim 9 ("the cartridge comprising: a housing having an interior and a solution holding medium adapted to hold a solution"), Claim 15 ("The cartridge of claim 9, further comprising an airflow passageway in the housing"). The Cartomizer Tube of the Vuse Alto Cartridge therefore cannot be part of the airflow passageway, as NJOY claims, while at the same time being part of the interior of the housing and the solution holding medium. NJOY and Dr. Vallee thus fail to point to an airflow passageway in the Vuse Alto Cartridge that is separate and distinct from the alleged housing and solution holding medium, as required by the asserted claims. CX-2157C (Vallee Opening Rpt.) at ¶¶ 1629-1632.

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In rebuttal to JLI's argument that a solution holding medium as claimed must be separate and distinct from the claimed airflow passageway and claimed heating element, Dr. Vallee makes the strange claim that "JLI's reading of the claim would mean the claim requires a solution holding medium outside of the housing, which is clearly inconsistent with the teaching of the patents," and cites FIG. 2 of the '864 Patent in support. *Id.* Contrary to Dr. Vallee's assertion, and as noted above, the evidence will show that FIG. 2 of the '864 Patent clearly depicts a solution holding medium, airflow passageway, and housing formed by separate structures and the solution holding medium is inside the housing. *See supra* Section IV.F.2.ii.c; *see also* JX-0001 ('864 Patent), at FIG. 2; *see also id.*, at 6:3-5 (disclosing that the solution holding medium 204 in FIG. 2 is an absorbent material); 5:51-54 (disclosing that an absorbent material can be "cotton, wool, polyester, a batting material, or some other suitable absorbent material," none of which are materials that the '864 Patent also discloses as forming or capable of forming the heating element 222, airflow passageway 214, housing 202, or other components).

Second, Dr. Vallee fails to identify "an airflow passageway" required by claim 15. The evidence will show that the entirety of the airflow passageway must be formed by a defined physical structure under all parties' understanding of the term. *See* RX-1120C (Bonet Depo. Tr. 2024-03-06) at 119:17-122:25; *see also* RX-1530C (Vallee Reply Report on Infringement), at RX-1530C.67 (Dr. Vallee criticizing another expert for "exclusively focus[ing] on the path of air taken rather than identifying the structure of [a device's] airflow passageway"). However, Dr. Vallee has not, and will not, identify what specific structures form each portion of the alleged airflow passageway in the Vuse Alto Cartridge. *See* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1629-1632; RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶ 668. NJOY, therefore, will not be able to establish that the claimed airflow passageway exists within the Vuse Alto Cartridge. *See also id.*; *see also*

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[redacted]

JX-0558C (NJOY ACE PMTA, Sec 2.3.1), at JX-0558C.19; JX-0498C (NJOY [redacted] MIP App. A), at JX-0498C.35.

Third, the region Dr. Vallee defines as the airflow passageway of the Vuse Alto Cartridge includes the [redacted]. *See* CX-2157C (Vallee Opening Rpt.) at ¶ 1532; *see also* JX-0580C (Vuse Alto PMTA Sec. H), at JX-0580C.37; RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶ 662. As Dr. Dahm will explain and Dr. Vallee acknowledges, at least the [redacted] wick prevents the alleged airflow passageway from "extending centrally and axially with respect to the housing" as recited in dependent claim 15. RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶ 606.

For at least these reasons, NJOY will be unable to provide sufficient evidence to show that the Vuse Alto Cartridge practices this additional claim limitation.

iii. VUSE Solo

NJOY asserts that RJR's Vuse Solo Systems using both the Vuse Solo G1 and G2 Cartridges practice claims 2, 9, 10, 12, 15, 16, and 20 of the '864 Patent, and RJR's Vuse Solo Systems using the Vuse Solo G2 Cartridges further practice claims 26 of the '864 Patent. [24] The evidence will show that the Vuse Solo System does practice any of the asserted claims of the '864 Patent, at least because NJOY fails to meet its burden of proof showing the Vuse Solo G1 and G2 Cartridges satisfy the following limitations:

- "a solution holding medium adapted to hold a solution";
- "the heating element being configured to vaporize at least a portion of the solution for oral provision to an individual in the airflow";

[24] Claim 2 depends on independent claim 1 and claim 26 depends on independent claim 25. Accordingly, although not expressly asserted, limitations of independent claims and 25 are included in the following discussion.

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[redacted]

- "the first end of the housing being adapted to electrically couple to the power source";
- "the airflow passageway extends centrally and axially from the first aperture to the second aperture";
- "the airflow passageway extends in a straight path from the first aperture to the second aperture with only the heating element obstructing a portion of the airflow through the airflow passageway along the central longitudinal axis of the housing";
- "the airflow through the housing follows an airflow path, a first portion of the airflow path proximate the first aperture being defined substantially centrally and axially with respect to the central longitudinal axis of the housing, and a second portion of the airflow path proximate to the second aperture being defined substantially centrally and axially with respect to the central longitudinal axis of the housing";
- "the airflow to pass on both transverse sides of the heating element during use of the electronic vaporizer"; and
- "the heating element extending transversely to a central longitudinal axis of the housing."

a. NJOY fails to show that the Vuse Solo Systems practice the claimed "solution holding medium adapted to hold a solution"

Claims 1, 9, and 25 of the '864 Patent require the claimed cartridge to have "a solution holding medium adapted to hold a solution." *See* JX-0001 ('864 Patent), at Claims [1.2], [9.2], [25.2]. Similar to his arguments regarding the '881 Patent, Dr. Vallee is expected to argue at the Hearing that the Vuse Solo Cartridges (G1 and G2) include "a batting, [redacted], any portion of the chamber in which liquid solution resides, or a combination thereof" that meet the claimed solution holding medium (reservoir) limitations. *See e.g.*, CX-2157C (Vallee Opening Rpt.) at ¶¶ 1645-1652, 1878-1882, 1926-1929. But for the same reasons discussed above in Section IV.F.1.i.a, the evidence at the Hearing, including the testimony of JLI's expert Dr. Dahm, will show that NJOY cannot meet its burden of proving that the Vuse Solo Systems satisfy the aforementioned "solution holding medium adapted to hold a solution" limitations of the '864 Patent for the same reasons that NJOY will be able to show the Vuse Solo

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[redacted]

Systems satisfy the "solution holding medium adapted to hold a solution" limitation of the '881 Patent. *See e.g.,* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 671-676; JX-0577C (Vuse Solo PMTA, Sec H), at JX-0577C.26-41, 108-118; JX-0509C (Alto and Solo Graphics); Section IV.F.1.i.a *supra.*

b. NJOY fails to show the Vuse Solo Systems satisfy "the heating element being configured to vaporize at least a portion of the solution for oral provision to an individual in the airflow" limitations

Claims 1, 9, and 25 of the '864 Patent require a "the heating element being configured to vaporize at least a portion of the solution [drawn to the heating element] for oral provision to an individual in the airflow" *See e.g.*, JX-0001 ('864 Patent), Claims [1.6] ("the heating element being configured to vaporize at least a portion of the solution for oral provision to an individual in the airflow"), [9.6] (same), [25.6] ("the heating element being configured to vaporize at least the portion of the solution drawn to the heating element for oral provision to an individual in the airflow"). JLI expects Dr. Vallee to allege that the heating coil and the portion of the wick within the heating coil collectively forms the claimed "heating element. *See, e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶ 1664 (Dr. Vallee alleges that the Vuse Solo Cartridges "include a heating element (i.e., at least a resistive heating coil)" and that "[t]he heating element may also include the [redacted]."). But as explained below, the evidence at the Hearing, including the testimony of JLI's expert Dr. Dahm, will show that the Vuse Solo Systems do not practice the aforementioned "heating element …" limitations of the '864 Patent because (1) the [redacted] cannot be part of the heating element; (2) the Vuse Solo Systems' heating coil alone is not configured to vaporize the claimed solution, and (3) the heating coil and the Vuse Solo Systems [redacted]; and (3) the wick cannot be part of the claimed heating element. *See* RX-0841C (Dahm Rebuttal

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[redacted]

Rpt. and Errata) at ¶¶ 691-705); JX-0577C (Vuse Solo PMTA, Sec H); JX-0509C (Alto and Solo Graphics).

1. The wick cannot be part of the claimed heating element

For the same reasons discussed above in Sections IV.B.4, IV.D.1.i.e.1, IV.F.1.i.c.3, the intrinsic record and the parties' proposed construction for "heating element" do not allow the claimed heating element being made of non-wicking material to include a separate wick. *See supra* IV.B.4, IV.D.1.i.e.1, IV.F.1.i.c.3; *see also* RX-0845 (2024-01-23 Revised Joint Claim Construction Chart); RX-1538 (Order No. 36 Claim Construction Order) at RX-1538.39-40. Further, for the reasons discussed in Section IV.F.1.i.c.3 *supra*, Dr. Vallee improperly separates [redacted]; the intrinsic record also does not support portions of the solution holding medium also forming the heating element.

2. The heating coil is not "configured to vaporize at least a portion of the solution" held in the solution holding medium

For the same reasons discussed in Section IV.D.1.i.e.2 *supra*, claims 1 and 9 require the heating element to vaporize solution held ***in the solution holding medium***. JX-0001 ('864 Patent), Claims 1 and 9. However, Dr. Vallee has not alleged and the evidence will show that the only remaining heating element (i.e., the heating coil) in the Vuse Solo Cartridges has any special configuration that would cause it to vaporize solution [redacted]. *See, e.g.,* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 696-699; JX-0577C (Vuse Solo PMTA, Sec H), at JX-0577C.26-41. Rather, similar to the heating coil in the JUUL1 Pod, [redacted]. *Id*. The heating coil in

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[redacted]

the Vuse Solo Cartridges, thus, is not configured to heat or vaporize any portion of the solution held in the alleged solution holding medium, as required by the asserted claims. *Id.*

3. The heating coil is not "configured to vaporize at least the portion of the solution drawn to the heating element" held in the solution holding medium

Claim 25 of the '864 Patent, on the other hand, requires the heating element to be "configured to vaporize at least ***the portion of the solution drawn to the heating element***." JX-0001 ('864 Patent) at Claim 25 (emphasis added). The evidence will show that the Vuse Solo G2 Cartridges do not practice this claim limitation, at least because Dr. Vallee has failed to show that whatever specific portion of the solution is drawn to the heating coil via the wick is vaporized. *See* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1738-1740. Dr. Vallee cites to no evidence whatsoever that the entire portion of the solution drawn to the coil is vaporized, or that some amount of the portion of solution that is drawn to the coil will not be left unvaporized. *Id*. Without such evidence, NJOY cannot meet its burden proving that the G2 heating coil is configured to vaporize ***the entirety of*** that specific portion of the solution that is drawn to it. *Id.*; JX-0577C (Vuse Solo PMTA, Sec H), at JX-0577C.34-41; RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 698-699. Therefore, the heating coil is not configured to vaporize the portion of the solution drawn to it, and therefore does not meet the "heating element …" limitation.

4. The alleged heating element does not "vaporize" any solution "for oral provision" but instead delivers aerosol to users

Dr. Vallee is expected to testify that the Vuse Solo Systems, [redacted] practice this limitation that requires producing vaporized solution to users. *See e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1671-1676, 1362. However, the evidence will show that the Asserted Patents recognize the significant material differences between a vapor and an aerosol, and the patent chose to disclose and claim providing only a vaporized solution—not an

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[redacted]

aerosolized solution—"for oral provision to an individual." *See* Section IV.D.1.i.e.3 *supra*. For the same reasons discussed in Section IV.F.1.i.c.2 *supra*, [redacted]. Therefore, the Vuse Solo Systems do not deliver vaporized solution to users.

c. NJOY fails to show the Vuse Solo Systems satisfy "the first end of the housing being adapted to electrically couple to the power source" limitations

Claims 1, 9, and 25 of the '864 Patent require that the cartridge to include a first end of the housing that is configured to electrically couple to the conductive portion of the power source. *See e.g.,* JX-0001 ('864 Patent), Claim [1.3] ("the first end of the housing being adapted to electrically couple to the power source"); *see also id.* at Claims [9.3] and [25.3]. Dr. Vallee will argue at the Hearing that the Vuse Solo Cartridges have a first end of the housing, specifically, the electrical contacts, being adapted to electrically couple to the Vuse Solo Power Unit. *See e.g.*, CX-2157C (Vallee Opening Rpt.) at ¶¶ 1653-1657. However, as explained above, the evidence will show that the electrical contacts Dr. Vallee will rely upon in his analysis cannot be part of the claimed "housing," either under the plain meaning of "housing," or even Dr Vallee's very broad definition of housing (i.e., anything attached to the exterior of the housing is part of the housing). *See* Sections IV.B.1, IV.D.1.i.a, IV.F.1.i.b *supra*; RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 706-713; JX-0577C (Vuse Solo PMTA, Sec H); JX-0509C (Alto and Solo Graphics). Therefore, the electrical contacts cannot be "the first end of the housing" that is adapted to electrical couple to the power source. *Id.*

The only component that that can be "the first end of the housing" according to Dr. Vallee's own assertion is the bottom facing surface of the cartridge base. *See e.g.*, CX-2157C (Vallee Opening Rpt.) at ¶¶ 1648-1649.

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[redacted]



See e.g., CX-2157C (Vallee Opening Rpt.) at ¶ 1649. [redacted] JX-0577C (Vuse Solo PMTA, Sec H), at JX-0577C.28 (G1), 36 (G2). Therefore, if it is determined that the electrical contacts are not part of the claimed "housing," the Vuse Solo Systems cannot infringe the Asserted Claims for at least this reason.

d. NJOY fails to show the Vuse Solo Systems satisfy the airflow passageway extending "centrally and axially" or "in a straight path" from the first aperture to the second aperture limitation

Claim 1 of the '864 Patent requires "the airflow passageway extends centrally and axially from the first aperture to the second aperture" and claim 25 requires that "the airflow passageway extends in a straight path from the first aperture to the second aperture." *See* JX-0001 ('864 Patent), Claim [1.7] ("an airflow passageway in the housing, at least a portion of the airflow passageway extending centrally and axially with respect to the housing, wherein the airflow passageway extends centrally and axially from the first aperture to the second aperture"); Claim [25.7] ("an airflow passageway in the housing, at least a portion of the airflow passageway extending centrally

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and axially with respect to the housing, wherein the airflow passageway extends in a straight path from the first aperture to the second aperture with only the heating element obstructing a portion of the airflow through the airflow passageway along a central longitudinal axis of the housing"). NJOY and Dr. Vallee will argue that there exists a central and axial airflow passageway in the Vuse Solo Cartridges extending from the alleged first aperture to the alleged second aperture. *See* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1681-1685. However, the evidence at the Hearing, including the testimony of JLI's expert Dr. Dahm, will show that NJOY cannot meet its burden of proving that the Vuse Solo Systems practice the aforementioned "airflow passageway" limitations of the '864 Patent because (1) the alleged airflow passageway does not extend all the way from the alleged first aperture to the alleged second aperture, (2) the alleged airflow passageway is not central and axial, (3) the alleged airflow passageway occupies the entire width of the alleged housing and cannot be the claimed airflow passageway, and (4) the alleged airflow passageway is not separate and distinct from the other claimed elements. *See* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 704-728; JX-0577C (Vuse Solo PMTA, Sec H); JX-0509C (Alto and Solo Graphics).

As a preliminary matter, the parties do not dispute that extending axially means extending in a straight path and, therefore, there is no meaningful difference between the aforementioned "airflow passageway" limitations. *See e.g.,* RX-0845 (Revised Joint Claim Construction Chart) (the parties adopting the construction of "airflow passageway …" terms from the prior *Fuma v RJR* litigation); CX-2316 (*Fuma v RJR* Claim Construction Order) at CX-2316.19-20 (explaining the ordinary meaning of "axially" "contemplates a straight line travelling along the axis of the housing"), CX-2316.22 (construing "An airflow passageway that extends centrally and ***axially*** with respect to the housing intermediate of the first aperture on the first end of the housing and the

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[redacted]

second aperture on the second end of the housing" terms to mean "The airflow passageway extends ***in a straight path*** through the center of the cartridge from a first opening on the first end to a second opening on the opposite end of the cartridge.") (emphasis added). Therefore, in order to satisfy its burden of demonstrating that the Vuse Solo Cartridges meet these limitations, NJOY must provide that the alleged airflow passageway in the Vuse Solo Cartridges extend in a straight path from the alleged first aperture (*i.e.*, the center microperforation in the recessed end of the tank) to the second aperture. As explained below, NJOY cannot meet its burden.

1. The alleged airflow passageway does not extend from a centrally located first aperture all the way to a centrally located second aperture

Claims 1 and 25 require that the airflow passageway "extends … ***from the first aperture to the second aperture***," *i.e.,* in the entire distance between them. *See* JX-0001 ('864 Patent), at Claims 1, 25. For the same reason discussed in Section IV.F.1.i.d.1 *supra*, Dr. Vallee fails to show the Vuse Solo Systems have the claimed airflow passageway because the evidence will show that there is no structure whatsoever that extends centrally and axially or in a straight path from the alleged first aperture in the Vuse Solo Cartridges.

2. The alleged airflow passageway does not extend centrally and axially from the first aperture to the second aperture

Claims 1 requires that "the airflow passageway extends ***centrally and axially*** from the first aperture to the second aperture" and claim 25 requires that the "airflow passageway extends ***in a straight path*** from the first aperture to the second aperture." *See* JX-0001 ('864 Patent), at Claims 1, 25. However, as the evidence will show, for the same reasons discussed in Section IV.F.1.i.d.2 *supra*, [redacted] and therefore, cannot satisfy the aforementioned "airflow passageway" limitations.

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[redacted]

3. Dr. Vallee's interpretation of a central and axial airflow passageway precludes the Vuse Solo Systems from practicing

For the same reasons discussed in Section IV.F.1.i.d.3 *supra*, if Dr. Vallee is correct that an airflow passageway cannot extend the entire diameter of a claimed cartridge, then the Vuse Solo Cartridges cannot include a central and axial airflow passageway and therefore, cannot satisfy the aforementioned "airflow passageway" limitations.

4. The interior of the housing, solution holding medium, and airflow passageway must comprise separate structures

As discussed in Section IV.D.1.i.d.4 *supra*, claims 1, 15, and 25 require that the airflow passageway be separate and distinct from other claimed elements, such as the solution holding medium and the housing interior. *See e.g.,* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶ 725; JX-0577C (Vuse Solo PMTA, Sec H), at JX-0577C.34-41. The reservoir substrate cannot be part of the alleged solution holding medium and the alleged airflow passageway. *Id*. Similarly, the mouth end cap, the external tube, and the cartridge base cannot be part of the alleged housing interior and the alleged airflow passageway. *Id*.

e. NJOY fails to show the Vuse Solo Systems satisfy the "only the heating element obstructing a portion of the airflow through the airflow passageway along a central longitudinal axis of the housing" limitation

Claim 25 requires "an airflow passageway … with only the heating element obstructing a portion of the airflow through the airflow passageway along a central longitudinal axis of the housing." *See* JX-0001 ('864 Patent), Claim [25.7]. Dr. Vallee will not allege the Vuse Solo G1 Cartridge practices this limitation because the Vuse Solo G1 Cartridge includes [redacted] and would also obstruct a portion of the airflow through the airflow passageway alleged by Dr. Vallee. *See* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1710-1711, 1786. JLI expects that Dr. Vallee will testify that the Vuse Solo G2 Cartridges practices

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[redacted]

this limitation because its heating coil and [redacted] collectively forms the claimed "heating element" and only the alleged heating element obstructs a portion of the airflow through the alleged airflow passageway. *See* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1710-1711, 1786. However, Dr. Vallee is incorrect—and NJOY will not be able to prove that the Vuse Solo G2 Cartridge practices this limitation of claim 25—for at least two reasons. *See e.g.,* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 736-738; JX-0577C (Vuse Solo PMTA, Sec H), at JX-0577C.34-41, 115-118; JX-0509C (Alto and Solo Graphics).

First, as discussed above in Sections IV.F.1.i.e and IV.F.2.iii.b, because [redacted]. *See e.g.,* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 736-738; JX-0577C (Vuse Solo PMTA, Sec H), at JX-0577C.34-41, 115-118; JX-0509C (Alto and Solo Graphics). Further, as shown below, [redacted]. *See* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1710-1711; JX-0577C (Vuse Solo PMTA, Sec H), at JX-0577C.35-41, 115-118; JX-0509C (Alto and Solo Graphics).

Second, while the airflow passageway is defined by [redacted].

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[redacted]



JX-0577C (Vuse Solo PMTA, Sec H), at JX-0577C.35.



Id. at JX-0557C.35.

And third, to the extent the ALJ disagrees with JLI that the airflow passageway is defined by [redacted]. *See* CX-2157C (Vallee

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[redacted]

Opening Rpt.) at ¶¶ 1710-1711; JX-0577C (Vuse Solo PMTA, Sec H), at JX-0577C.35-41, 115-118; JX-0509C (Alto and Solo Graphics).

f. NJOY fails to show the Vuse Solo Systems satisfy the substantially central and axial airflow path portions limitations

Claim 9 of the '864 Patent requires "the airflow through the housing follows an airflow path, a first portion of the airflow path proximate the first aperture being defined substantially centrally and axially with respect to the central longitudinal axis of the housing, and a second portion of the airflow path proximate to the second aperture being defined substantially centrally and axially with respect to the central longitudinal axis of the housing." *See* JX-0001 ('864 Patent), at Claim [9.7]. To support NJOY's claim that the Vuse Solo Systems practice this limitation, Dr. Vallee is expected to rely only on the following overly simplified annotations of photo and diagrams from the Vuse Solo PMTA, shown below. These annotated photos and diagrams depict, without corroborating evidence, the locations where Dr. Vallee believes the airflow path in the Vuse Solo Systems are substantially central and axial. Based on these photos and diagrams and nothing more, Dr. Vallee intends to argue that "the airflow through the housing follows an airflow path, a first portion of the airflow path proximate the first aperture being defined substantially centrally and axially with respect to the central longitudinal axis of the housing, and a second portion of the airflow path proximate to the second aperture being defined substantially centrally and axially with respect to the central longitudinal axis of the housing." *See, e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1726-1729 (claim element [9.7] of the '864 Patent).

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[redacted]

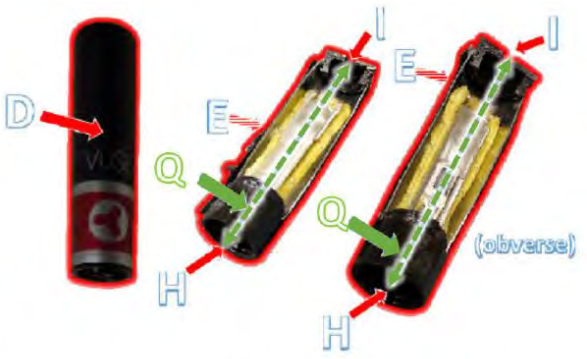


Photo of the VUSE Solo G1 Cartridge Showing First [H] and Second [I] Apertures Aligned with the Central Longitudinal Axis [Q]



Photo of the VUSE Solo G2 Cartridge Showing First [H] and Second [I] Apertures Aligned with the Central Longitudinal Axis [Q]

CX-2157C (Vallee Opening Rpt.) at ¶ 1727.

[redacted]

Id. at ¶1728 (Left: G1; Right: G2).

However, as explained below, the evidence will show that neither Vuse Solo Cartridges includes an airflow path where two portions of the airflow path as claimed are substantially central and axial. *See, e.g.,* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 729-735; JX-0577C (Vuse Solo PMTA, Sec H); JX-0509C (Alto and Solo Graphics).

1. Lack of Evidence of Actual Airflow in the Vuse Solo Systems

First, Dr. Vallee has not provided, and will not provide at the Hearing, any basis or evidence for his conclusory assertion that the airflow path "proximate" the alleged first aperture is substantially central and axial with respect to the central longitudinal axis of the housing. Dr. Vallee will not, for example, present any evidence of how the air travels through either Vuse Solo System

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[redacted]

that would show or prove how air actually flows between the alleged first aperture and the alleged second aperture. *See* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1726-1737. Dr. Vallee is instead expected to merely annotate cross-sectional images with imprecise generalizations of his assumptions about the airflow trajectory, as with his alleged airflow passageway. *Id.*

But as Dr. Dahm will explain, the diagrams in Dr. Vallee's report that purport to show the airflow in the Vuse Solo Systems are substantially over-simplistic in how they represent the airflow. *See, e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1727-1728; RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 729-735; JX-0577C (Vuse Solo PMTA, Sec H); JX-0509C (Alto and Solo Graphics). Accordingly, air will not flow through the cartridge from the alleged first aperture to the alleged second aperture in the way Dr. Vallee alleges. *See*. [redacted] *See* JX-0577C (Vuse Solo PMTA, Sec H), at JX-0577C.32 and 33 (G1), 40 and 41 (G2). [redacted] *Id.*; *see also* RX-0924 ("Computational Fluid Dynamics Study…"); RX-0917 ("Flow-Pressure Drop Characteristics of Perforated Plates"); RX-0916 ("Numerical Modelling of the Gas Flow…"); RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 729-735. Each of these features would prevent air from flowing in a substantially straight an axial manner through either cartridge. *Id*.

Dr. Vallee's analysis will not take account of any of these features on the resulting airflow in either cartridge. *Id.* As Dr. Dahm will explain, a person of ordinary skill in the art would

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[redacted]

understand that the airflow through the actual Vuse Solo Systems would be substantially more complex than as Dr. Vallee represents, and will explain why the airflow would not be substantially central and axial as Dr. Vallee alleges. *Id.*

2. The alleged portions are not substantially central and axial

Second, even if Dr. Vallee can rely on the grossly over-simplified arrows as the airflow through the cartridges, the evidence will still show that Dr. Vallee cannot meet his burden of proofing that his two alleged portions of the airflow path are substantially central and axial. [redacted] *See* CX-2157C (Vallee Opening Rpt.) at ¶ 1728; *see also* JX-0577C (Vuse Solo PMTA, Sec H), at JX-0577C.32.

[redacted]

CX-2157C (Vallee Opening Rpt.) at ¶ 1728 (G1).

[redacted]

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[redacted]

[redacted] *See* CX-2157C (Vallee Opening Rpt.) at ¶ 1728; *see also* JX-0577C (Vuse Solo PMTA, Sec H), at JX-0577C.32.

[redacted]

CX-2157C (Vallee Opening Rpt.) at ¶ 1728 (G2).

3. Incorrect interpretation of "proximate"

For reasons discussed above in Section IV.D.2.i.h, a POSITA reading the ALJ's construction of "proximate" would understand that "a first portion of the airflow path proximate the first aperture" is first half of the airflow path between the first aperture to the midway point between the first and second aperture and "a second portion of the airflow path proximate the second aperture" is the other half of the airflow path between the midway point between the first and second aperture and the second aperture. The evidence will show that, under this correct interpretation of "portion," it cannot be disputed that the Vuse Solo Systems lack two portions of the airflow path that are substantially central or axial. *See* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1727-1728; JX-0577C (Vuse Solo PMTA, Sec H), at JX-0577C.32 (G1 Cartridge); *id*. at JX-0577C.40 (G2 Cartridge); RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶ 753. [redacted]

[redacted]

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[redacted]

[redacted] *Id*. Even the oversimplified arrows relied on by Dr. Vallee show that the first portion of the airflow path is not substantially central and axial in the Vuse Solo G1 Cartridge because [redacted]. *Id.* Indeed, Dr. Vallee will have to concede that [redacted]. *Id*. Further, for the Vuse Solo G2 Cartridge, a part of Dr. Vallee's alleged first portion is actually closer to the alleged second aperture than to the alleged first aperture (because his alleged first portion extends beyond the midway point between the two apertures). *Id*. Dr. Vallee has not alleged an alternative theory to his alleged first portion in the Vuse Solo G2 Cartridge. *Id*. Therefore, for this reason alone, Dr. Vallee fails to meet his burden of proving the alleged first portion even satisfies "a first portion of the airflow path proximate the first aperture." JX-0002 ('864 Patent), Claim 9.

[redacted]

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[redacted]

See CX-2157C (Vallee Opening Rpt.) at ¶ 1728 (G1) (annotated in orange and pink; blue annotations in original).



CX-2157C (Vallee Opening Rpt.) at ¶ 1728 (G2) (annotated in orange and pink; blue annotations in original).

g. NJOY fails to show the Vuse Solo Systems satisfy a heating element extending transversely to the central longitudinal axis of the housing

Claims 1, 9, and 25 of the '864 Patent require "the heating element extending transversely to a central longitudinal axis of the housing" and claim 25 of the '864 Patent further requires the heating element "extending … transversely to a direction of the airflow." *See e.g.,* JX-0001 ('864 Patent), Claim [1.5] ("the heating element extending transversely to a central longitudinal axis of the housing…"), Claim [9.5] (same), Claim [25.5] ("the heating element including a coil extending transversely to the central longitudinal axis of the housing and transversely to a direction of the airflow…"). Dr. Vallee is expected to testify that the coil and [redacted] of the Vuse Solo Systems collectively extends transversely to the central longitudinal axis of the housing. *See* CX-2157C (Vallee Opening Rpt.) at ¶¶ 1663-1667. The evidence will show that

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the heating coil in the Vuse Solo Cartridges does not extend transversely to the central longitudinal axis because a coil is a length of wire which has continuously changing direction along its length. *See e.g.,* RX-0841C (Dahm Rebuttal Rpt. and Errata) at ¶¶ 683-690; CPX-0017 (Physical Sample of VUSE Solo G1); CPX-0018 (Physical Sample of VUSE Solo G2). At least portions of the coil extend parallel to the central longitudinal axis. *Id*. Further, as discussed in Section IV.F.1.i.j *supra*, the heating coil does not extend from the alleged airflow passageway or housing.

h. NJOY fails to show the Vuse Solo Systems satisfy the airflow passing on both transverse sides of the heating element limitations

Claim 25 of the '864 Patent requires airflow to pass "on both transverse sides of the heating element during use of the electronic vaporizer." *See e.g.,* JX-0001 ('864 Patent), Claim [25.5]. For the same reasons discussed in Section IV.F.1.i.f, NJOY and Dr. Vallee fail to show the Vuse Solo G2 Cartridge satisfies this limitation.

G. Invalidity

1. The '864 Patent

i. The Prior Art

It is largely undisputed that the prior art contained all elements of the asserted claims. For example, Dr. Vallee himself admitted that the prior art included e-cigarettes with: housings, heating elements in an airflow, mediums to hold nicotine solution, heating components configured to vaporize that solution, air inlets situated opposite air outlets which are connected by airflow passageways, and central and axial airflow passageways. *See, e.g.,* RX-1015C (Vallee 4/12/24 Tr.) at 291:6-18; 293:2-295:1; 322:22-323:18; 329:24-330:24.

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[redacted]

Dr. Vallee testified that the claimed invention is the configuration of the components in an e-cigarette. *See, e.g.,* RX-1015C (Vallee 4/12/24 Tr.) at 326:7-327:17. But that too was known, as will be demonstrated by Mr. Leinsing, and as discussed below.

Electronic vaporizers, or electronic cigarettes (e-cigarettes), are generally battery powered devices that simulate smoking by vaporizing liquid solution. *See, e.g.,* JX-0632C (Leinsing Opening Rpt.) at ¶¶ 44-46. The modern e-cigarettes were developed by Chinese pharmacist Hon Lik and entered into the market in 2003. *See* RX-0311C (Public Health Consequences of E-Cigarettes) at RX-0311C.61.

Common components of e-cigarettes in or around 2009 included a battery that powers the device, an absorbent material and/or other solution holding means that holds the e-liquid, a means for heating the e-liquid, a means for vaporizing the e-liquid by fluid/heat transfer, at least one air inlet and outlet on opposite ends of the e-cigarette, and a pathway in the e-cigarette to allow the airflow to pass through. *See, e.g.,* JX-0632C (Leinsing Opening Rpt.) at ¶¶ 44-46.

Mr. Conley, one of the named inventors, testified that he did not invent: (i) an e-cigarette that had a cartridge; (ii) a cartridge configured for use with an electronic vaporizer; (iii) a cartridge with a housing and/or two ends; nor (iv) a cartridge with a heating element in the interior of the housing, as those elements were already well-known in the art. *See, e.g.,* RX-1116C (Conley 3/01/2024 Tr.) at 328:9-331:20. Rather, he testified that he invented a "balanced system" of the combination of claimed components. *Id.* at 119:15-25.

a. E-Cigarette and Separable Power Source and Cartridge

Despite the various models and designs of e-cigarettes, e-cigarettes in the market in or around 2009 can be generally categorized into three configurations – one-piece, two-piece, and three-piece e-cigarettes. *See, e.g.,* JX-0632C (Leinsing Opening Rpt.) at ¶¶ 47-56. Known one-piece e-cigarettes included: (1) a battery that powers the device (2) an absorbent material and/or

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other solution holding means that holds the e-liquid; (3) a means for heating the e-liquid, and (4) a means for vaporizing the e-liquid by fluid/heat transfer, all within a single inseparable casing. Known two and three-piece devices separated the non-disposable battery from a so-called "cartridge" portion that is separable from the portion of the device containing the battery. Known "cartridge" portions contained an absorbent material and/or other solution holding means that held the e-liquid and a means for heating and vaporizing the e-liquid by fluid/heat transfer, called an "atomizer." In known two-piece cartridge designs the cartridges are sometimes referred to as "cartomizers," and contain both the solution holding means and atomizer components in a non-separable component. As the two cartomizer components could not be separated, in the two-piece design, every new cartridge came with a fresh atomizer, which would be discarded once the solution in the cartridge had been consumed. In known three-piece designs, the cartomizer portions of the devices also included the solution holding means and the atomizer, but the atomizer could be separated from and reused with fresh solution holding cartridges. As the solution in the solution holding means was typically consumed faster than the atomizer needed to be replaced, companies in the industry sold replacement "cartridges" containing the solution holding means, and an empty cavity for the end-user to insert an existing atomizer to form a fully assembled cartomizer portion.

One-piece e-cigarette designs were prevalent in and before 2009, and it was well-known in the art to combine all portions of the e-cigarette into a single casing. *See, e.g.,* JX-0632C (Leinsing Opening Rpt.) at ¶¶ 47-56; *see also* Fang '044; CX-2129 (Han '824). It was also well known in the art and beneficial to separate a one-piece design into a 2-piece or 3-piece design. For example, as early as 2009, it was well-known in the industry that the heating component in e-cigarettes could get burned out and/or start to take on a charred flavor over time; the industry

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[redacted]

therefore developed designs that allowed replacement of atomizers to ensure a consistent taste and experience for the user. *See, e.g.,* JX-0632C (Leinsing Opening Rpt.) at ¶¶ 47-56. Users would also want to change the e-liquid so that they can try different flavors or refill the e-liquid without having to deal with free liquid; this flexibility was not possible in a one-piece design. *See* JLI-ITC1372_00992166. When the e-cigarette has a one-piece design, a user would need to buy an entire new device every time they needed to replace the atomizer, ran out of e-liquid, or wanted change to a different flavor, forcing the user to pay for the cost of the battery portion (including relatively expensive components like the battery, light indicating whether the e-cigarette is on or off, circuit board, and pressure switch) as well every time the user needs to replace just one component of the e-cigarette. It became beneficial to separate the battery portion from the atomizer and e-liquid storage portions to reduce cost for users and provide users with greater flexibility in terms of how they used their e-cigarettes. With a separable battery, for example, a user no longer needed to discard and purchase the whole e-cigarette just to replace one component or refill the e-liquid; the user could also replace just the batteries or recharge them for use with multiple cartridges, greatly simplifying the smoking experience.

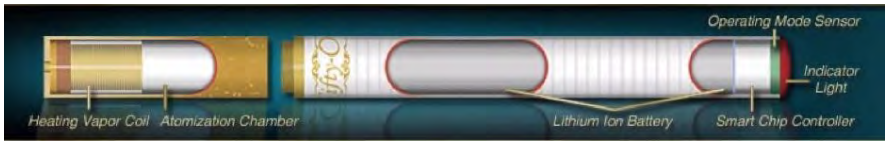
It was also well-known in the art to combine the e-liquid storage and the atomizer of a three-piece device to form a two-piece device. *See, e.g.,* JX-0632C (Leinsing Opening Rpt.) at ¶¶ 47-56. As early as 2008, industry leaders understood there to be several advantages to a two-piece design, including simplifying the process of refreshing the atomizer in an e-cigarette by allowing users to dispose of an atomizer and attach a new one to their e-cigarettes simply by switching to a new cartridge. *See, e.g.*, JX-0624 (Compare Fifty-One to Other Electronic Cigarettes) at JX.0624.1-2.

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[redacted]

Further, in 2-piece and 3-piece designs, it was well known in the art to use conductive threaded connections. *See, e.g.,* JX-0632C (Leinsing Opening Rpt.) at ¶¶ 47-56. One end of the battery portion has either a female or male threaded conductor and one end of the cartridge has either a male or female threaded conductor. This was a common way to design an e-cigarette in which the battery had to be connected with the rest of the e-cigarette (*e.g.*, to allow the battery to provide electricity to the atomizer). *See e.g.,* JX-0609 (showing the three pieces of the SuperSmoker e-cigarette, including the cartridge, the atomizer, and the battery). The Cigarette Electronique e-cigarette is also a three-piece device with threaded conductors. The Smoke Fifty-One Trio is another 3-piece device with threaded conductors. *See* JX-0481 (showing that Smoke 51 Trio was available for sale in the U.S. by no later than May 6, 2009); JX-0548 (Conley RJRV Tr.) at 23:9-14 (identifying Smoke 51 Trio being a 3-piece device). So are NJOY NCIG and NPRO e-cigarettes. *See e.g* JX-0482C (NJOY Tobacco Plus Expo Slide Deck). 3-piece devices with threaded conductors were also well documented in patents and applications. *See e.g.,* RX-0001 (Han '311 Application); JLI-ITC1372_00000649 (Fang '396 Application); *see also* JLI-ITC1372_00992166.

Similarly, the Smoke 51 Duo e-cigarette is a typical 2-piece e-cigarette with threaded conductors. *See, e.g.,* JX-0632C (Leinsing Opening Rpt.) at ¶¶ 47-56. The battery portion has a male threaded conductor, and the cartridge portion has a female threaded conductor, where the cartridge portion including a liquid holding compartment/material and an atomizer.



[redacted]

See e.g., JX-0614 (showing the Smoke 51 Duo e-cigarette was sold no later than July 7, 2009 and used a 2-piece design).

NPRO Style and Red Dragon are also 2-piece devices using threaded conductors. KR808D is another 2-piece device with threaded conductors. *See e.g.,* JX-0601 (Electronic Cigarettes, Inc. Product Page). The first generation of GreenSmoke e-cigarettes also use a 2-piece design with threaded conductors. *See e.g.,* JX-0620 (GreenSmoke 2008 1st Gen. Cartridge). Two-piece devices with threaded conductors were also well documented in patents and applications. *See e.g.,* RX-0027 (Wang '554); JX-0596 (Xia '610).

The first named inventor of the Asserted Patents, Greg Conley, admitted that two-piece and three-piece designs were available in 2008 and he purchased devices with those designs in 2008. *See* JX-0548 (Conley RJRV Tr.) at 7:22-8:20 (testifying that he used a three-piece e-cigarette in 2008) and 9:21-10:13 (testifying that he used a two-piece Smoke 51 e-cigarette in 2008). Daniel Hillenbrandt, the other named inventor also confirmed that they did not invent a cartomizer. Hillenbrandt Tr. at 99:3-100:5.

b. Apertures and Ends

It was well-known in the art that a cartridge needs apertures on two opposite ends for the air to go through it. *See, e.g.,* JX-0632C (Leinsing Opening Rpt.) at ¶¶ 57-59. Almost all prior art systems have an aperture in the center on the mouthpiece end, at least as NJOY interprets "end" (as encompassing more than the furthest edge). *See, e.g.,* JX-0632C (Leinsing Opening Rpt.) at ¶¶ 57-59 (identifying Smoke Fifty-One Duo, Red Dragon, Cigarette, NPRO Style, Smoke Fifty-One Trio, NPRO, NCIG, GreenSmoke – 1st Gen). This was also disclosed in numerous prior art patent references. *See, e.g.*, JX-0632C (Leinsing Opening Rpt.) at ¶¶ 57-59 (identifying Xia '610, Wang '554, Fang '044, Wang '927, Han '311).

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[redacted]

On the other end of the cartridge that gets connected to the battery, it was well-known in the art to have an aperture in the center on that end as well, at least as NJOY interprets "end." *See, e.g.,* JX-0632C (Leinsing Opening Rpt.) at ¶¶ 57-59. For example, prior art devices such as Red Dragon, Smoke 51 Duo, Cigarette Electronique, and NPRO Style all include an air inlet on the battery-end of the cartridge for air to come into the cartridge and mix with vaporized e-liquid. Similar designs were also disclosed in prior art patent references. *See e.g.,* RX-0027 (Wang '554). In other designs, when the battery-end of the cartridge includes air intake holes on the sides it would also include an opening in the center where the air coming in from the sides can converge into so that air can reach the atomizer sitting in the center of the cartridge. *See e.g.,* JX-0596 (Xia '610), RX-0029 (Wang '927).

The first named inventor of the Asserted Patents, Greg Conley, admitted that the two-piece Smoke 51 e-cigarette he had in 2008, *i.e.*, Smoke 51 Duo, discloses "the housing includes a first end and a second end that is opposite the first end, wherein the housing includes a first aperture on the first end and a second aperture on the second end." *See e.g.,* Claim 1 of U.S. Patent No. 9,532,604; JX-0548 (Conley RJRV Tr.) at 55:22-59:8. The other inventor, Mr. Hillenbrandt testified similarly. *See* RX-1114C (Hillenbrandt) at 100:21-102:8.

c. Airflow Passageway

NJOY's interpretation of the "airflow passageway" allows: (1) the airflow passageway to have any obstacle that obstructs the airflow, such as a wick, batting material, etc.; (2) the airflow passageway to be the same or shared structure as other components such as the solution holding medium or housing; and (3) no physical structure of the airflow passageway to extend from the first aperture to the second aperture.

The evidence will show that it was well-known in the art and common sense that the cartridges would include one or more airflow passageways to allow air to flow through the

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[redacted]

cartridge from one end to the other end, at least as NJOY interprets "airflow passageway." *See, e.g.,* JX-0632C (Leinsing Opening Rpt.) at ¶¶ 60-62. At the time of the alleged invention, there were two common design options. The first option is a design similar to Smoke 51 Duo where there is a defined central passageway structure, extending between central apertures on opposite ends. *See, e.g.,* JX-0632C (Leinsing Opening Rpt.) at ¶¶ 60-62.



See RX-0130C (Declaration of Yardimici) at RX-0130C.29 .

The other option includes defined central passageway structures extending from central apertures on opposite ends of the cartridge, but which do not extend all the way to each other. *See, e.g.,* JX-0632C (Leinsing Opening Rpt.) at ¶¶ 60-62. In the case of the Cigarette Electronique design for example, a liquid storage means sits in the center of the housing leaving space between the liquid cartridge and the housing for airflow to pass through. *Id.* (identifying Cigarette Electronique, Xia '610, Han '311, NJOY NCIG, Smoke Fifty-One Trio). Under NJOY's interpretation of the asserted claims, this would comprise "an airflow passageway that extends centrally and axially with respect to the housing intermediate of the first aperture on the first end of the housing and the second aperture on the second end of the housing" because the liquid storage means is merely an obstruction that the airflow path must go around.



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[redacted]

See JX-0401 (Photos of Cigarette Electronique) at JX-0401.5 (annotated in red).

The inventor of the Asserted Patents, Greg Conley, admitted that the two-piece Smoke 51 e-cigarette he had in 2008, *i.e.*, Smoke 51 Duo, discloses "the housing includes an airflow passageway that extends centrally and axially with respect to the housing intermediate of the first aperture on the first end of the housing and the second aperture on the second end of the housing, wherein the airflow passageway is configured to allow an airflow through the cartridge from the first aperture to the second aperture of the housing." *See e.g.,* Claim 1 of U.S. Patent No. 9,532,604; JX-0548 (Conley RJRV Tr.) at 55:22-59:8.

d. Solution Holding Medium

It was well-known in the art for cartridges to include an absorbent material and/or liquid holding means to hold the e-liquid in the e-cigarette. *See, e.g.,* JX-0632C (Leinsing Opening Rpt.) at ¶¶ 63-64. For example, prior art systems, including but not limited to Red Dragon, Smoke 51 Duo, Smoke 51 Trio, Cigarette Electronique, NPRO Style, NPRO, NCIG, and Green Smoke – 1st Gen use a batting material to hold e-liquid. Prior art patent references also include similar disclosures of using an absorbent material alone or with some liquid holding structure to hold the e-liquid in the cartridge. *See, e.g.,* JX-0632C (Leinsing Opening Rpt.) at ¶¶ 63-64.

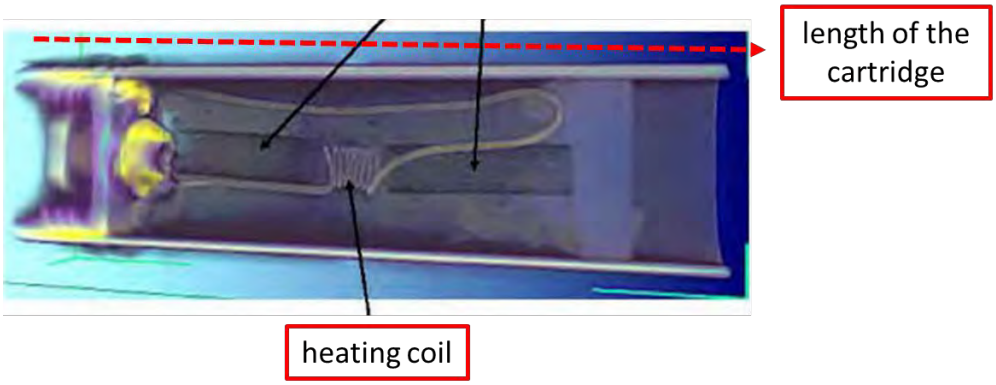
The inventor of the Asserted Patents, Greg Conley, admitted that the two-piece Smoke 51 e-cigarette he had in 2008, *i.e.*, Smoke 51 Duo, discloses "the housing includes a solution holding medium comprising a solution located in the interior of the housing, wherein the solution holding medium surrounds the airflow passageway in the interior of the housing and intermediate of the first end and the second end." *See e.g.,* Claim 1 of U.S. Patent No. 9,532,604 (RX-1001); JX-0548 (Conley RJRV Tr.) at 55:22-59:8; *see also* CX-1377C (Conley 02/29/2024 Tr.) at 78:13-79:1.

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[redacted]

e. Heating Element

It was well-known in the art that the cartridge included an atomizer, whether separatable or integrated with the cartridge, that included a means to heat the e-liquid. *See, e.g.,* JX-0632C (Leinsing Opening Rpt.) at ¶¶ 65-66. When the heating means was made using a heating coil or wire, the heating coil or wire either typically extended in the same direction as the length of the cartridge or extended in a horizontal direction. For example, prior art systems such as Smoke 51 Duo, Red Dragon, and NPRO Style all include a heating coil that extends in the same direction as the length of cartridge.

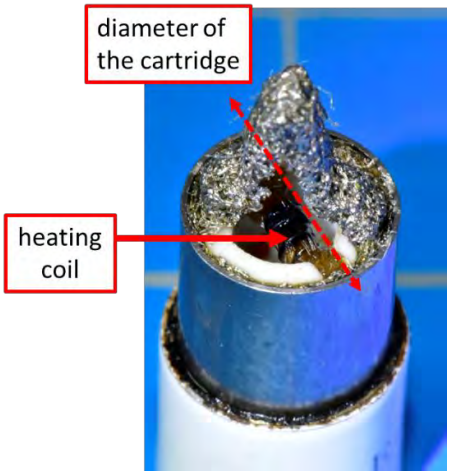


See RX-0130C (Declaration of Yardimici) at RX-0130C.29.

As another example, prior art systems such as Smoke 51 Trio, NCIG, and Cigarette Electronique all include a heating coil that extends in a horizontal direction. *See, e.g.,* JX-0632C (Leinsing Opening Rpt.) at ¶¶ 65-66.

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See CX-2763 (Photos of Cigarette Electronique) at CX-2763.9.

Mr. Conley testified that the Smoke Fifty One Duo he had in 2008 included a metallic heating element. CX-1377C (Conley 02/29/2024 Tr.) at 86:5-22. Mr. Hillenbrandt testified similarly. Hillenbrandt Tr. at 99:20-100:1.

1. Xia '610

The evidence will show that Chinese Patent No. CN 201238610Y to Xia ("Xia '610") was published on May 9, 2009. *See, e.g.,* JX-0596 (Xia '610 certified translation); RX-1102 (Xia '610 original-language copy); *see also* JX-0632C (Leinsing Opening Rpt.) at ¶¶ 219-220. For example, on its face, Xia '610 bears a "Date of Patent" of May 9, 2009. RX-1102 (Xia '610 original-language copy).

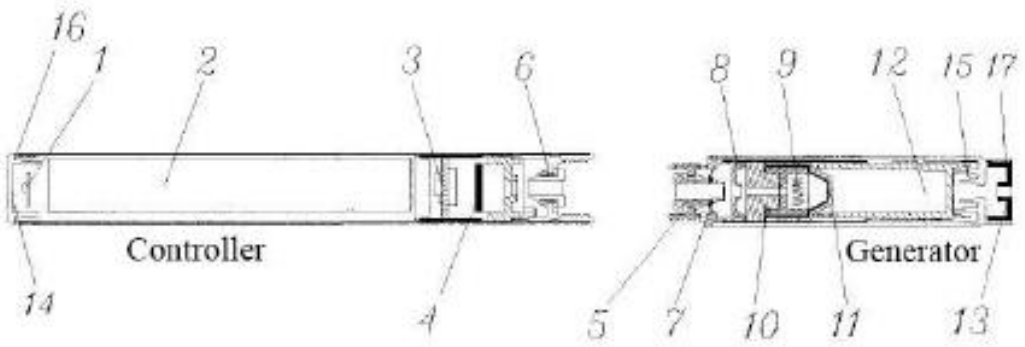
Xia '610 qualifies as prior art to the Asserted Patents under (pre-AIA) 35 U.S.C. ¶ 102 (a) and (b). For example, Xia '610 was patented and described in a printed publication in China on May 9, 2009, which is before July 28, 2009, the alleged date of the conception and reduction to practice. *See, e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶¶ 71, 241 (confirming NJOY is asserting a July 28, 2009 conception/reduction to practice date). Additionally, May 9, 2009 is also more than one year prior to July 27, 2010, the date of the '917 application to which the Asserted Patents claim

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[redacted]

priority. *See, e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶ 69 (confirming NJOY is asserting a July 21, 2010 date). NJOY and its expert do not dispute that Xia '610 qualifies as prior art to the Asserted Patents. *See generally* CX-2726C (Vallee Reb. Rpt.) at ¶¶ 247-253.

Xia '610 illustrates an example design, using cross-sectional images, for example in figure 2, which demonstrate that Xia '610 discloses a cylindrical electronic cigarette:



See JX-0596 (Xia '610) at FIG. 2.

Xia '610 discloses that the "controller" portion is connected to a "generator" portion, which serves as what is commonly referred to as a cartridge. For example, Xia '610 discloses a design for an e-cigarette that includes two main sections: "a detachable controller and a generator." JX-0596 (Xia '610) at JX-0596.3 (claim 1). Xia '610 discloses that the "generator" portion includes multiple components therein: "a hollow connecting conductor A (5), a vibrating diaphragm (7), a liquid-blocking plate (8), a secondary liquid storage chamber (10), a heater (9), a liquid-guiding mechanism (11), a liquid storage chamber (12) and a soft suction nozzle (13) are sequentially arranged inside the generator from left to right." JX-0596 (Xia '610) at JX-0596.3 (claim 1).

Xia '610 discloses an airflow passageway within the generator portion at least as NJOY interprets the claims. For example, Xia '610 explains that air flows through the device from left to right as illustrated in FIG. 2: "under the action of suction by the smoker, airflow enters the inside

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[redacted]

of the generator from the air inlets 702 on a side surface of the generator, under the action of the airflow, the vibrating diaphragm 7 vibrates … the heater 9 starts working, the chemical liquid is instantly vaporized in an atomizing working room of the heater 9, and the vaporized chemical liquid is sucked out by the smoker from the soft suction nozzle 13." JX-0596 (Xia '610) at JX-0596.10. Xia '610's "Fig. 5 is the schematic structural diagram of the airflow circulation of the suction nozzle part and he soft suction nozzle 13":

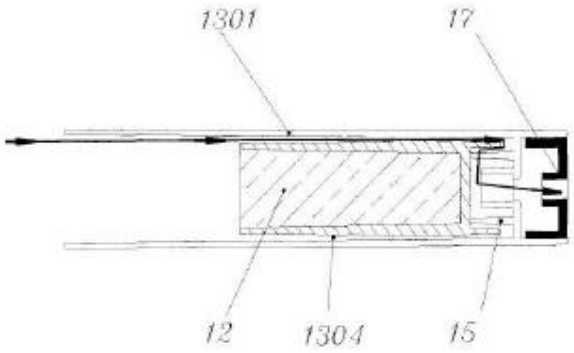


Fig. 5

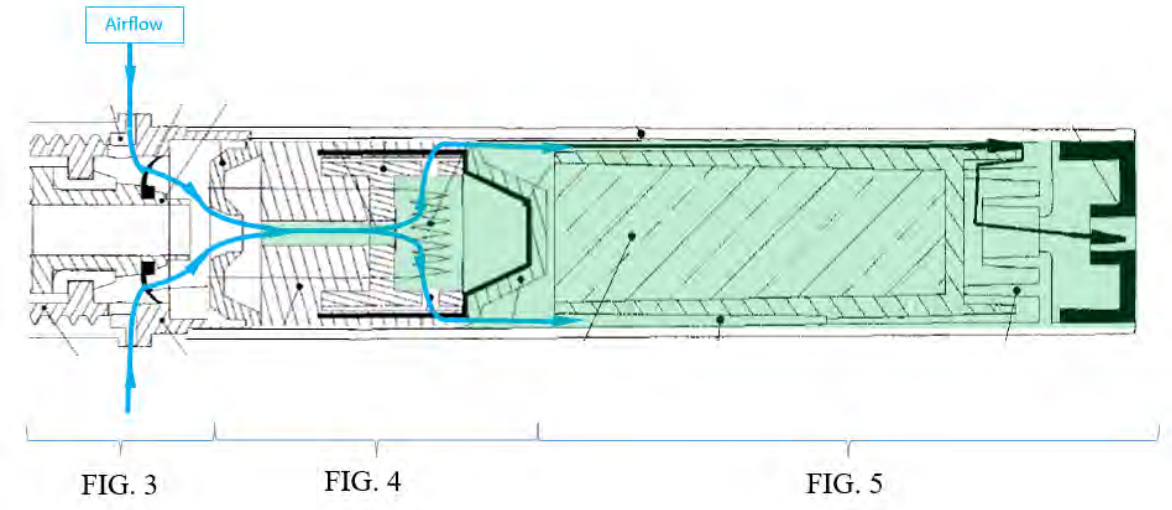
See JX-0596 (Xia '610) at JX-0596.13, FIG. 5.

At least under NJOY's interpretation of airflow passageways, Xia '610's airflow occurs within an airflow passageway defined by the inner face of the left end of the suction nozzle 1301. For example, Xia '610 explains that "the soft suction nozzle 13 is arranged on a right end face of the generator," and "a left end 1301 of the soft suction nozzle 13 extends to the bottom of the liquid stopping sheet 8, and may be made of environmental-friendly materials such as polypropylene PP, which may effectively prevent internal heat from being transmitted out." JX-0596 (Xia '610) at JX-0596.13. These components are illustrated in figure 5.

For example, the following annotated and combined version of Figures. 3-5 illustrates Xia '610's airflow passageway at least as NJOY interprets that term:

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[redacted]



See JX-0596 (Xia '610) at FIGs 3-5; JX-0632C (Leinsing Opening Rpt.) at ¶ 245.

Xia '610 discloses a solution holding medium. For example, Xia '610 describes a "liquid storage chamber 12" throughout. Xia '610 explains that "when in use, chemical liquid flows from the liquid storage chamber 12 into the secondary liquid storage chamber 10 through the liquid-guiding mechanism 11, the heater 9 is wrapped with the liquid-guiding mechanism 11 (see Fig. 4)." JX-0596 (Xia '610) at JX-0596.10. Xia '610 explains that "liquid storage chamber 12 is a cylindrical object with one end open, medicinal cotton fibers are placed in the middle, and then the raw chemical liquid is charged in. Through a capillary action of the liquid-guiding mechanism 11, the chemical liquid stored in the liquid storage chamber 12 is guided into the secondary liquid storage chamber 10." JX-0596 (Xia '610) at JX-0596.13.

Xia '610 illustrates a transverse heating element for example in Figure 4:

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[redacted]

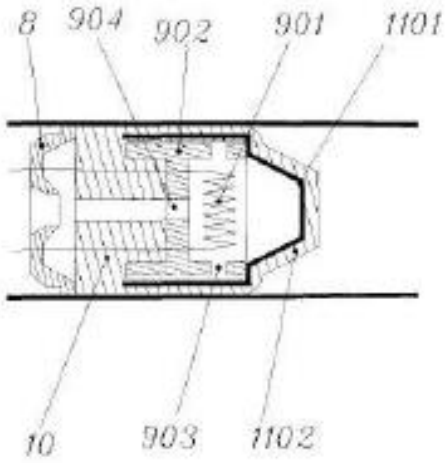


Fig. 4

See JX-0596 (Xia '610) at FIG. 4.

2. Wang '554

The evidence will show that Chinese Patent No. CN 101366554A to Wang ("Wang '554") was published on February 18, 2009. *See, e.g.,* JX-0632C (Leinsing Opening Rpt.) at ¶ 266; RX-0004 (Wang '554 original-language copy); RX-0005 (Wang '554 certified English translation). For example, on its face, Wang '554 bears a "Publication Date" of February 18, 2009. RX-0005 (Wang '554 certified English translation).

Wang '554 qualifies as prior art to the Asserted Patents under (pre-AIA) 35 U.S.C. ¶ 102 (a) and (b). For example, Wang '554 was described in a printed publication in China on February 18, 2009, which is before July 28, 2009, the alleged date of the conception and reduction to practice. *See, e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶¶ 71, 241 (confirming NJOY is asserting a July 28, 2009 conception/reduction to practice date). Additionally, February 18, 2009 is also more than one year prior to July 27, 2010, the date of the '917 application to which the Asserted Patents claim priority. *See, e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶ 69 (confirming NJOY is asserting a July 27, 2010 date). NJOY and its expert do not dispute that Wang '554

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[redacted]

qualifies as prior art to the Asserted Patents. *See generally* CX-2726C (Vallee Reb. Rpt.) at ¶¶ 254-259.

Wang '554 discloses "[a]n electronic pure cigarette comprises a cigarette holder part and a cigarette rod part" where the cigarette holder part consists of "a cigarette holder shell, an electric heater, a tobacco extract, an organic fiber, an air inlet, an air outlet, an input end, and the like" and "is a disposable product, and is used after being connected to a cigarette rod through the input end" where the holder's structure has in it "an adsorption material of the tobacco extract." RX-0005 (Wang '554) at RX-0005.4.

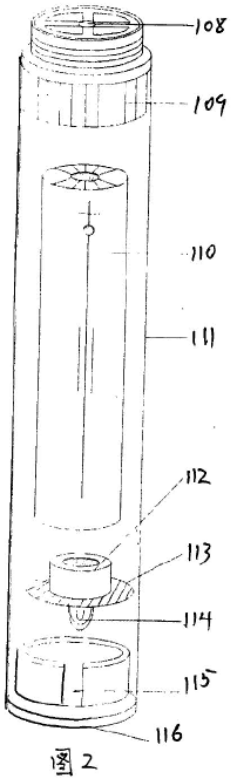


图 2

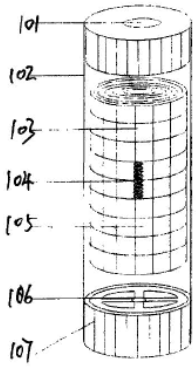


图 3

See RX-0005 (Wang '554) at FIGs 2, 3.

Wang '554 discloses an airflow passageway at least as NJOY interprets the claims. Within the cigarette holder part, Wang '554 describes that "the air inlet 106 of the cigarette holder, an

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internal gap of the cigarette holder and the air outlet 101 of the cigarette holder form the complete airflow channel." RX-0005 (Wang '554) at RX-0005.8. Wang '554 also explains that "The cigarette holder shell 102 is a hollow cylinder with one end being one end of the air inlet 106 … The other end is one end of the air outlet 101… The interior of the shell 102 provides a space for the electric heater 104 and the tobacco extract 103 and organic fiber 105 wound around it, and also provides a space for smoke produced when the tobacco extract 103 in the organic fiber 105 is heated by the electric heater 104." RX-0005 (Wang '554) at RX-0005.7.

Wang '554 discloses that the e-cigarette's working sequence is "a smoking motion causes airflow to enter the interior of the cigarette rod through the air inlet 115 of the cigarette rod, the sensor 112 is driven to transmit a switching signal to the control circuit board 113, the control circuit board 113 drives the heater 104 connected together through terminals to work, at the same time, the airflow reaches the internal gap of the cigarette holder through the air outlet 108 of the cigarette rod and the air inlet 106 of the cigarette holder, and the smoke generated by the tobacco extract 103 instantly heated by the heater 103 is partially sucked out from the air outlet 101 of the cigarette holder." RX-0005 (Wang '554) at RX-0005.8.

3. Fang '044

296. The evidence will show that Chinese Patent No. CN 201085044Y to Fang ("Fang '044") was published on July 16, 2008. *See, e.g.,* JX-0632C (Leinsing Opening Rpt.) at ¶ 296; RX-0008 (Fang '044 original-language copy); JX-0595 (Fang '044 certified English translation). For example, on its face, Fang '044 bears a "Date of Patent" of July 16, 2008. JX-0595 (Fang '044 certified English translation).

Fang '044 qualifies as prior art to the Asserted Patents under (pre-AIA) 35 U.S.C. ¶ 102 (a) and (b). For example, Fang '044 was patented and described in a printed publication in China on July 16, 2008, which is before July 28, 2009, the alleged date of the conception and reduction

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to practice. *See, e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶¶ 71, 241 (confirming NJOY is asserting aJuly 28, 2009 conception/reduction to practice date). Additionally, July 16, 2008 is also more than one year prior to July 27, 2010, the date of the '917 application to which the Asserted Patents claim priority. *See, e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶ 69 (confirming NJOY is asserting a July 27, 2010 date). NJOY and its expert do not dispute that Fang '044 qualifies as prior art to the Asserted Patents. *See generally* CX-2726C (Vallee Reb. Rpt.) at ¶¶ 260-275.

Fang '044 discloses an e-cigarette. For example, Fang '044's title is "Electronic Cigarette," and its Abstract states that "[d]isclosed is an electronic cigarette." JX-0595 (Fang '044) at JX-0595.1. Fang '044's claims also are directed to "An electronic cigarette, comprising: a sucker, a cigarette rod shell, a battery, a nicotine oil fuming device and a fuming device control switch." JX-0595 (Fang '044) at JX-0595.3.

Fang '044 illustrates its e-cigarette design in figure 1:

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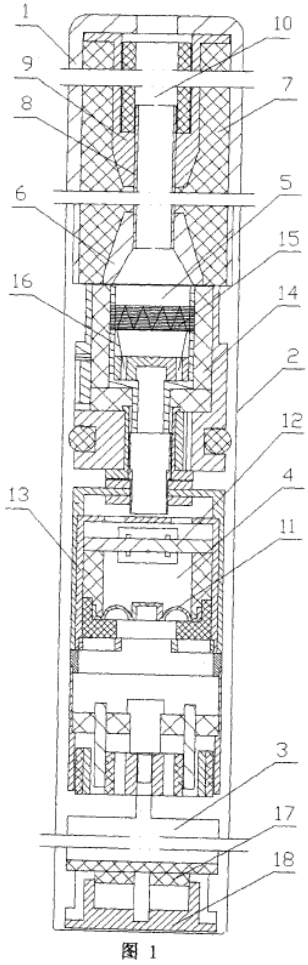


图 1

See JX-0595 (Fang '044) at FIG. 1.

To the extent Fang '044 does not already disclose a cartridge configuration for the device, a POSITA would have been motivated to modify the device to have a cartridge configuration, in view of Fang '044 alone, in view of Xia '610, and/or in view of Wang '554 and/or in view of Smoke Fifty-One Duo for example. Fang '044 renders obvious the use of a traditional cartridge design because it discloses that the device is made of separate pieces, and it discloses the use of two separate functional areas: (1) a top portion (as oriented in figure 1) that can be described as a 'cartridge', with components for storing and vaporizing nicotine oil and; (2) a power source, with

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a battery, in mechanical and electrical contact with the cartridge portion that contains the pressure switch, circuit board, and light similar to other analogous prior art.

It was well known in the art to have the power source portion separable from the rest of the e-cigarette and use threaded connections made of conductive material to connect the power source portion and the atomizer and cartridge portion. *See* Leinsing Op. Rpt. ¶¶ 331-332. For example, Xia '610 disclosed a "controller" portion (i.e., the power source portion) separate from the "generator" portion (i.e., the atomizer and cartridge portion) and the two portions being connected together using "the connecting conductor B6 and the connecting conductor A5 in threaded connection or clamping groove connection." As another example, Wang '554 disclosed a "cigarette rod" portion (i.e., the power source portion) separate from the "cigarette holder" portion (i.e., the atomizer and cartridge portion) and conductive threaded connections are used to connect the cigarette rod and the cigarette holder. Prior art systems such as the Red Dragon, Smoke 51 Duo, the Cigarette Electronique E-Cig, and the NPRO Style all use threaded conductors to connect the battery with the cartridge. *See* JX-0632C, Leinsing Op. Rpt. ¶¶ 331-332.

For example, as illustrated in Figure 1 of Fang '044, the housing extends inwardly in an area between the heating chamber and the pressure sensor and circuit. A POSITA would understand that this is a typical location for separating a single-piece design into a cartridge design, for example because the heater and the liquid storage are more consumable (and therefore better suited to being located in a cartridge that can be disposable) than the pressure sensor, circuit, and battery which are likely more expensive components and do not degrade as much with use. For example, with repeated use of the device there may be residue buildup on or near the heating coil. Additionally, if the device is used without sufficient liquid, the heater may burn out. Thus, it makes sense for the heating coil to be replaced periodically. Similarly, the liquid is consumed with use,

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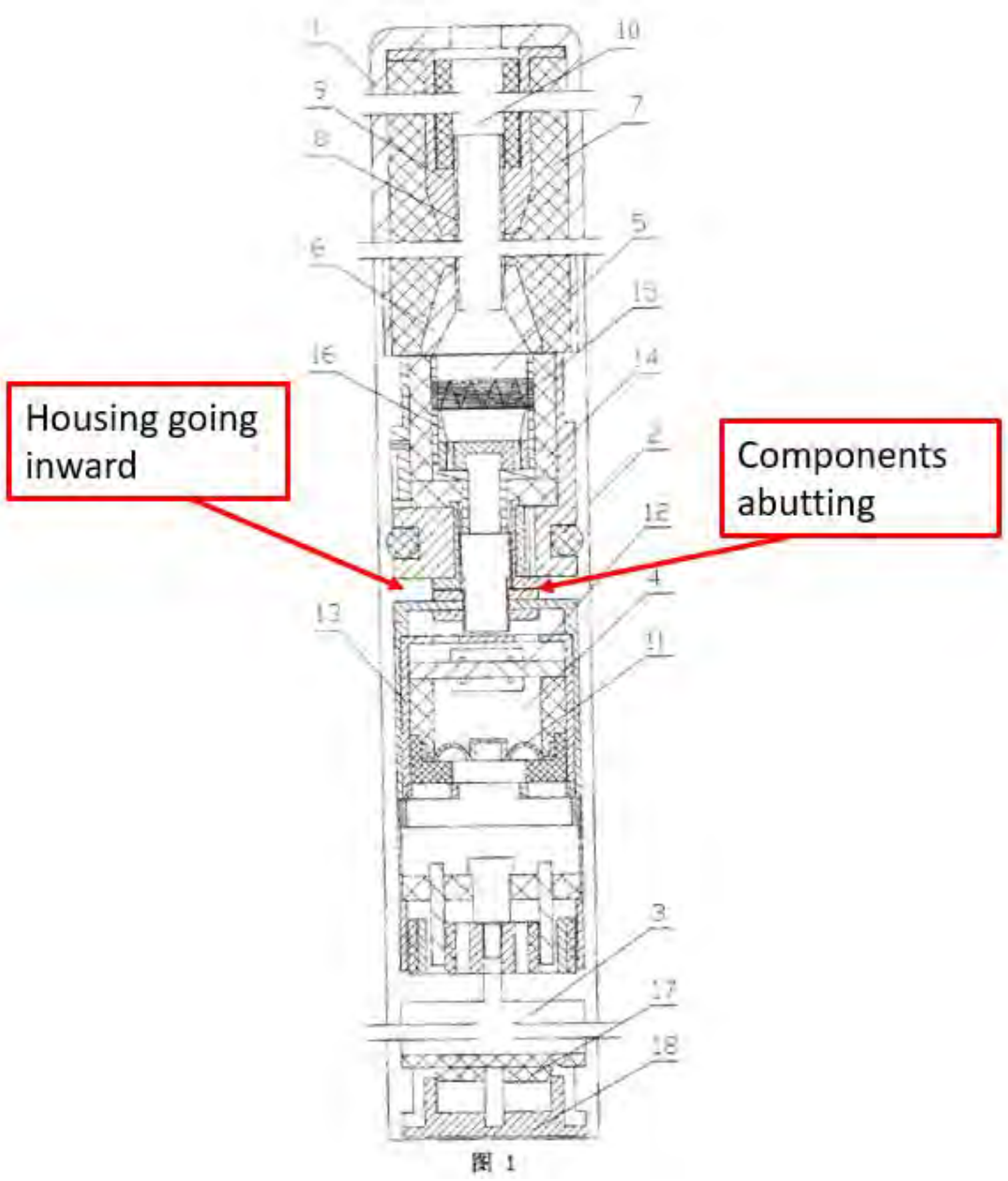
and it is easier and more straightforward for a user to replace a cartridge containing liquid than it is to try to open a device and fill free liquid into an existing absorbent material for example. Thus, it makes sense to replace the liquid storage periodically with pre-filled absorbent material. By contrast, the pressure sensor and circuit are less likely to degrade or be used up with use, and are more sensitive electronics than the heater for example, and therefore relatively more expensive. Thus, it makes sense to include these in a reusable portion, to save the consumer from having to repurchase the expensive components unnecessarily. Additionally, a rechargeable battery can be used in a reusable portion, which can be more convenient for users and result in less monetary and material waste than having disposable batteries.

Fang ’044 presents a very natural location for a split in its design to introduce a cartridge configuration, and a POSITA would have had a reasonable expectation of success in splitting it. For example, all this would require would be the separation of the housing at a location that is already functionally separated. In fact, Fang ’044 illustrates the components in this region as abutting each other, illustrating a split even in the internal components as well. Introducing a split would therefore not require the re-configuration of any internal components, and would only require the addition of some structure to secure the two pieces together that was well known in the art, such as threading.

In making this split, it would be obvious to include electrodes on both the cartridge portion and the power portion so that the electricity from the battery could be conducted to the heating coil. In fact, this appears to be what Fang ’044 already illustrates in showing the abutting components in this region in Figure 1 for example:

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See JX-0632C (Leinsing Opening Rpt.) at ¶ 304.

Fang '044 discloses a smoking channel 10, which serves as an airflow passageway as NJOY interprets the claims: "a gas pipe 8 is nested in the center of the evaporation oil storage sleeve 7, the gas pipe 8 is connected with a gas pipe support 9, the gas pipe 8 and the gas pipe support 9 form a smoking channel 10 with the center of the sucker 1 being separated and closed

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from the oil conservator 7, and the other end of the smoke sucking pipe 8 is communicated with the nicotine oil fuming device 5." JX-0595 (Fang '044) at JX-0595.5. Fang '044 explains that the airflow from the smoking channel extends all the way to the sensor 11: "When the utility model is in use, the smoking channel 10 generates a negative pressure in the atomizer control switch 4 by a suction force of a user, the silicon film-coated tablet 11 bulges in the support 13 towards the direction of the switch circuit board 12." JX-0595 (Fang '044) at JX-0595.5-6. The "smoking channel" airflow passageway includes (and extends through) the chamber of the nicotine fuming device 5, including because (1) negative pressure propagates through the chamber to the control switch 4, and (2) air and vaporized nicotine oil flow from the chamber through the smoking channel during use: "smoking channel 10 generates a negative pressure in the atomizer control switch 4 by a suction force of a user… [and] nicotine oil on the temporary oil storage device 15 is fumed to produce nicotine oil smoke, and the nicotine oil smoke is smoked by the user through the gas pipe 8 and the smoking channel 10." JX-0595 (Fang '044) at JX-0595.5-6.

Fang '044 discloses the use of a transverse electric heating film wire within a "fuming device" chamber of the e-cigarette: "the electric heating film wire 16 is wound on the temporary oil storage device 15, and the electric heating film wire 16 is electrically connected with the battery 3 through the fuming device control switch 4." JX-0595 (Fang '044) at JX-0595.5. Fang '044 illustrates the heating wire in figures 1 and 2:

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[redacted]

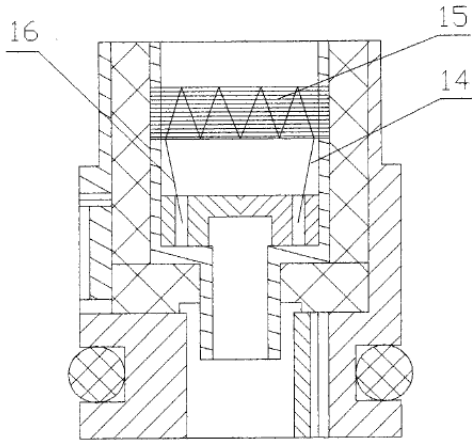


图 2

See JX-0595 (Fang '044) at FIG. 2.

4. Wang '927

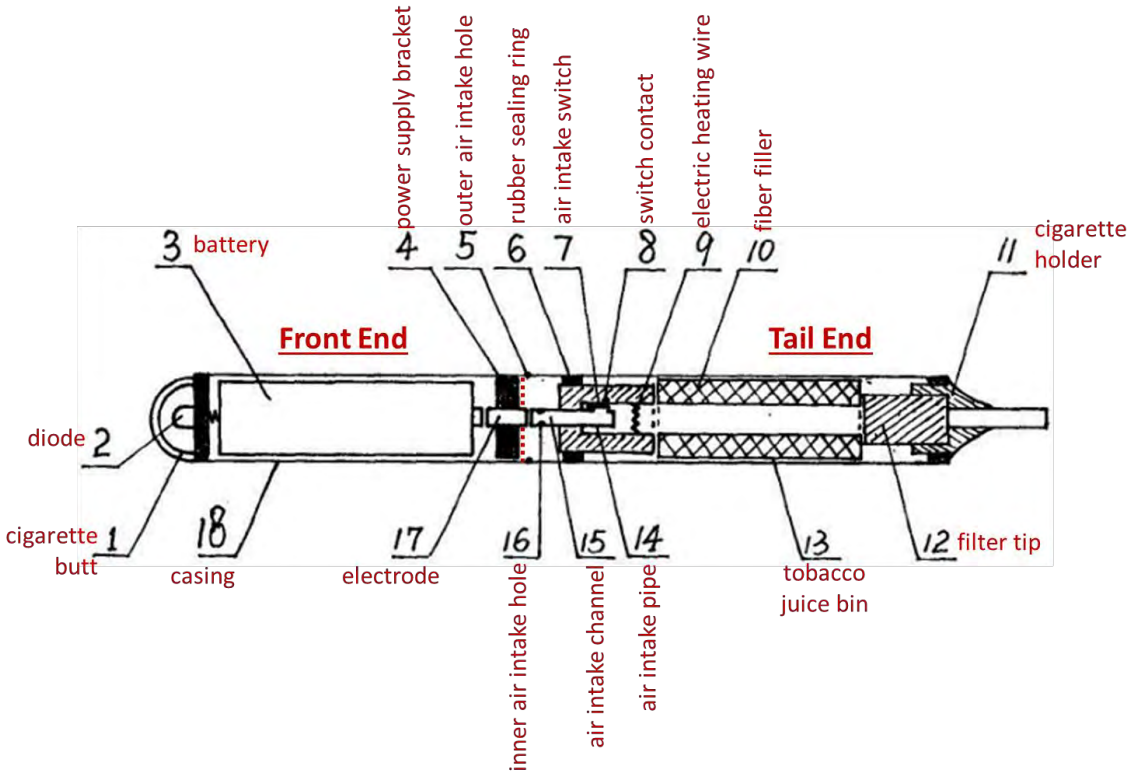
The evidence will show that Chinese Patent No. CN 201018927Y to Wang ("Wang '927") was published on Feb. 13, 2008. *See* JX-0632C (Leinsing Opening Rpt.) at ¶ 322; JX-0594 (Wang '927 original-language copy); JX-0594 (Wang '927 certified English translation). For example, on its face, Wang '927 bears a "Date of Patent" of Feb. 13, 2008. JX-0594 (Wang '927 certified English translation).

Wang '927 qualifies as prior art to the Asserted Patents under (pre-AIA) 35 U.S.C. ¶ 102 (a) and (b). For example, Wang '927 was patented and described in a printed publication in China on Feb. 13, 2008, which is before July 28, 2009, the alleged date of the conception and reduction to practice. *See* CX-2157C (Vallee Opening Rpt.) at ¶¶ 71, 241 (confirming NJOY is asserting aJuly 28, 2009 conception/reduction to practice date). Additionally, Feb. 13, 2008 is also more than one year prior to July 27, 2010, the date of the '917 application to which the Asserted Patents claim priority. *See* CX-2157C (Vallee Opening Rpt.) at ¶ 69 (confirming NJOY is asserting a July 27, 2010 date). NJOY and its expert do not dispute that Wang '927 qualifies as prior art to the Asserted Patents. *See generally* CX-2726C (Vallee Reb. Rpt.) at ¶¶ 276-299.

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[redacted]

Wang '927 discloses an electronic cigarette ("e-cigarette"). JX-0594 (Wang '927) at Fig. 1, JX-0594.1-2, 4. It describes an electronic cigarette device including a cigarette casing (18), which comprises a battery (3) on one end and a tobacco juicer bin (13) on the opposite end. *Id*. at JX-0594.3-5, Fig. 1.

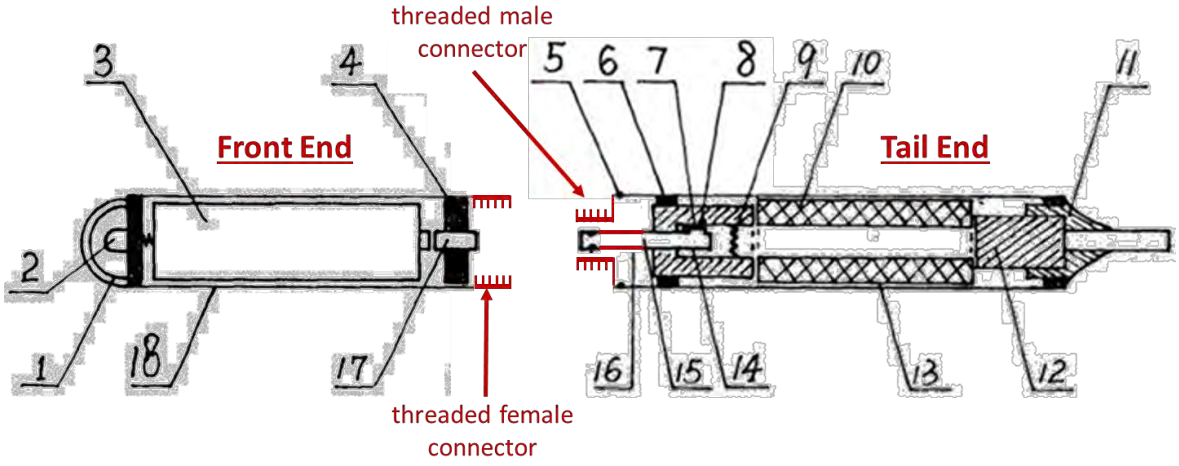


See JX-0594 (Wang '927) at Fig. 1 (annotated in red); JX-0632C (Leinsing Opening Rpt.) at ¶ 328.

Wang '927 describes the "front end" and the "tail end" separately, demonstrating that it describes a cartridge configuration. *Id.* Additionally, the evidence will show that a POSITA would be motivated to use threaded connections to connect the front end and the tail end because thread connections are very strong and secure mechanically and reliable electrically; such a configuration was very common well before the asserted patents. JX-0639C (Leinsing Invalidity Rpt.) at ¶¶ 330-333

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[redacted]



See JX-0594 (Wang '927) at Fig. 1 (annotated in red, with modifications).

It was well known in the art to have the power source portion separable from the rest of the e-cigarette and use threaded connections made of conductive material to connect the power source portion and the atomizer and cartridge portion. JX-0639C (Leinsing Opening Rpt.) at ¶¶ 331-332. For example, Xia '610 disclosed a "controller" portion (i.e., the power source portion) separate from the "generator" portion (i.e., the atomizer and cartridge portion) and the two portions being connected together using "the connecting conductor B6 and the connecting conductor A5 in threaded connection or clamping groove connection." JX-0596 (Xia '610). As another example, Wang '554 disclosed a "cigarette rod" portion (i.e., the power source portion) separate from the "cigarette holder" portion (i.e., the atomizer and cartridge portion) and conductive threaded connections are used to connect the cigarette rod and the cigarette holder. Prior art systems such as the Red Dragon, Smoke 51 Duo, the Cigarette Electronique E-Cig, and the NPRO Style all use threaded conductors to connect the battery with the cartridge. *See* JX-0639C (Leinsing Opening Rpt.) at ¶¶ 331-332.

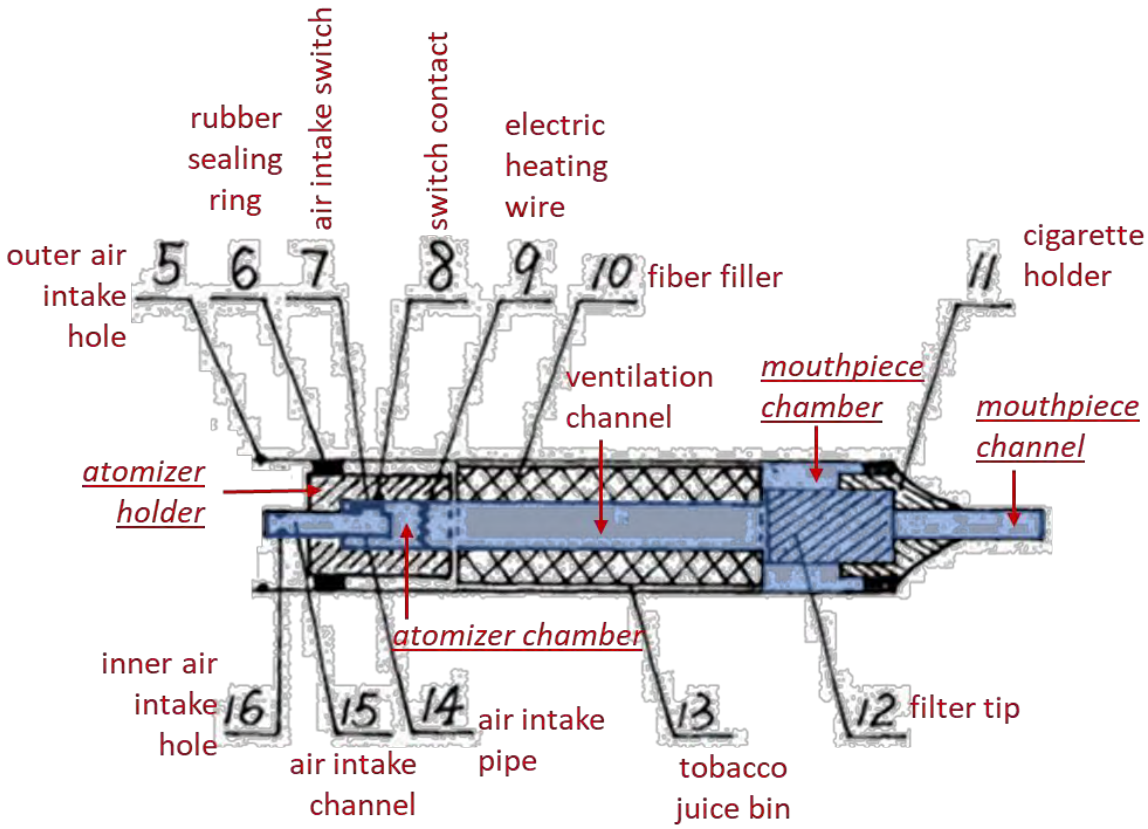
Additionally, a POSITA would also be motivated to look to prior art references and systems, such as Wang '554 or the NPRO Style, to separate the front end of the e-cigarette

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[redacted]

disclosed in Wang '927 from the tail end and use conductive threaded connections to connect the tail end to the front end. For example, Wang '554 and NPRO Style each discloses using threaded connections to connect the battery portion and the cartridge. The threaded connections are made of a conductive material so that when the two portions are connected, current can flow from the battery in the power source portion to the heating coil in the cartridge via the threaded connections. *See* JX-0639C (Leinsing Opening Rpt.) at ¶¶ 331-332.

Wang '927 discloses a central and axial airflow passageway under NJOY's interpretation. For example, Wang '927 discloses the air intake pipe 14 that includes air intake channel 15 for air to go through the air intake pipe and reach the electric heating wire 9. *Id.* at Fig. 1, RX-1108.3-5.

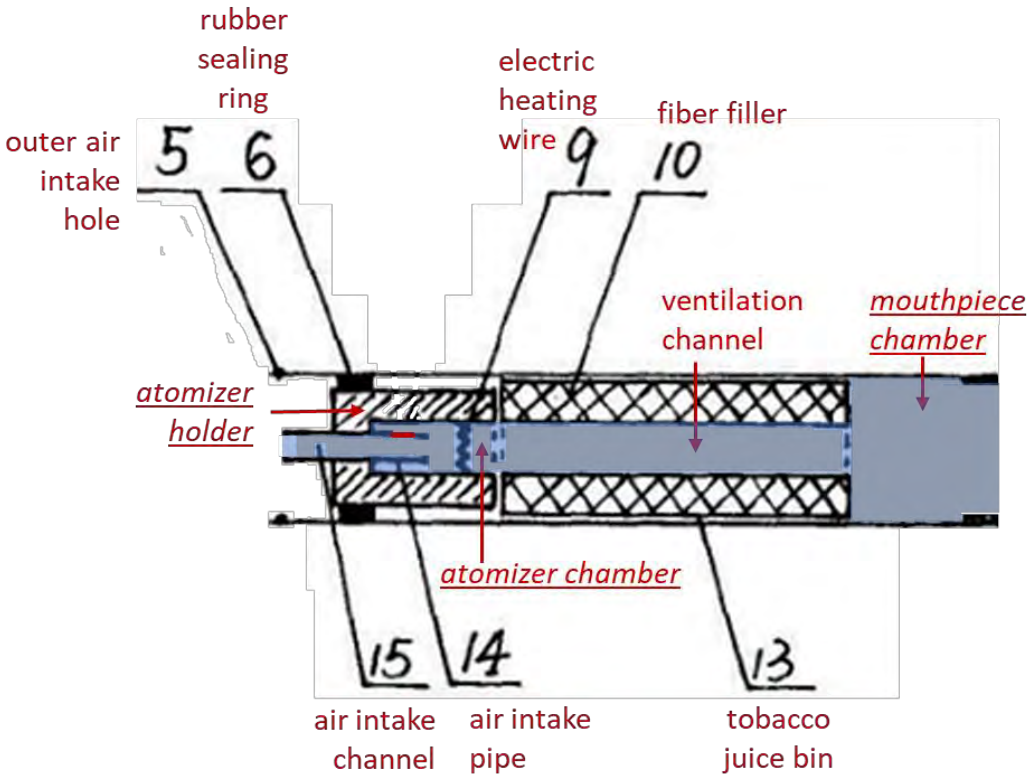


See JX-0594 (Wang '927) at Fig. 1; JX-0632C (Leinsing Opening Rpt.) at ¶ 347.

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[redacted]

Particularly, under NJOY's interpretation where the mouthpiece does not need to be part of the cartridge, Wang '927 also discloses a central and axial airflow passageway, including the air intake channel, the atomizer chamber, the ventilation channel in the middle of the tobacco juice bin, and the mouthpiece chamber as shown below.



See JX-0594 (Wang '927) at Fig. 1; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 352.

Wang '927 discloses a transverse heating element. *Id.* at Fig. 1 and JX-0594.1-2, 4 For example, Wang '927 discloses the electric heating wire 9 that generates heat to vaporize tobacco juice for a user to inhale. *Id.* at JX-0596.1; JX-0632C (Leinsing Opening Rpt.) at ¶ 356.

5. Han '364

The evidence will show that Korean Patent Publication No. KR20100004364U to Jingsu Han ("Han '364") was published on April 29, 2010. *See, e.g.,* RX-0012 (Han '364 original-language copy); JX-0631(Han '364 certified English Translation). For example, on its face, Han

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[redacted]

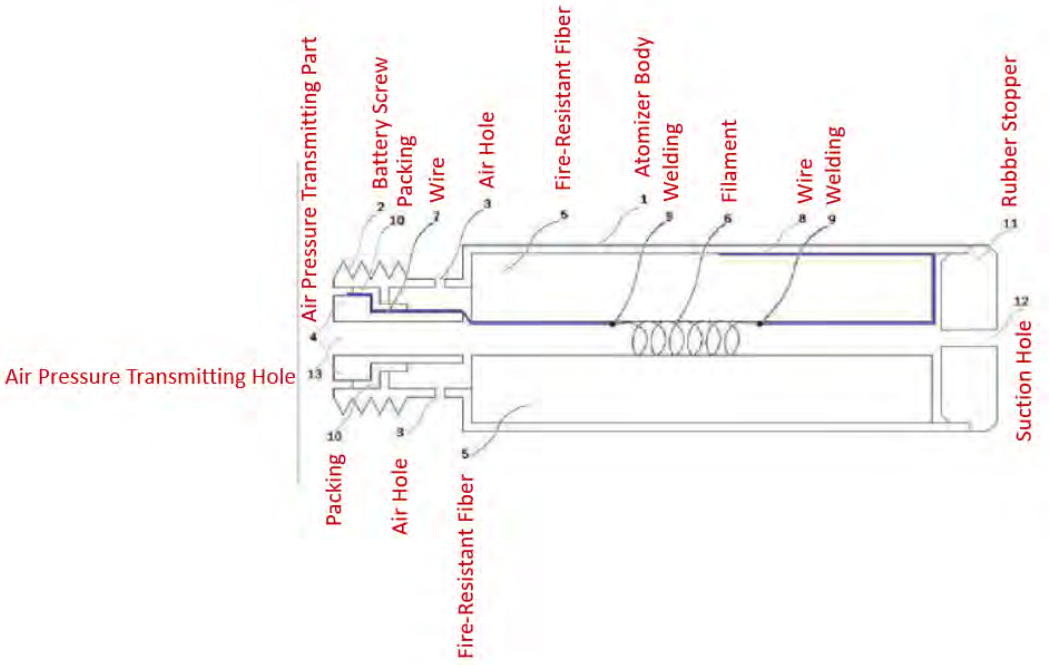
’364 bears a “date of Publication” of April 29, 2010. *See, e.g.,* JX-0631 (Han ’364 certified English Translation) at JX-0631.2.

Because the evidence will show that the Asserted Patents are not entitled to claim priority to the alleged conception and reduction to practice date of July 28, 2009, Han ’364 qualifies as prior art to the Asserted Patents under (pre-AIA) 35 U.S.C. ¶ 102 (a). *See* Section IV.C above (establishing failure of proof of prior conception and reduction to practice). For example, without entitlement to an invention date of July 28, 2009 by claiming conception and reduction to practice, the Asserted Patents should at earliest be given an invention date contemporaneous with the date of the ’917 application, July 27, 2010. *See, e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶ 69 (confirming NJOY is asserting a July 27, 2010 date). Han ’364 was published on April 29, 2010, and therefore “described in a printed publication … in a foreign country” before July 28, 2010, and therefore before the alleged invention by the applicant.

Han ’364 discloses a cartridge component that includes a solution holding medium, a central airflow passageway, and a heating element. JX-0631at [0014]-[0015]; JX-0632C (Leinsing Opening Rpt.) at ¶ 362.

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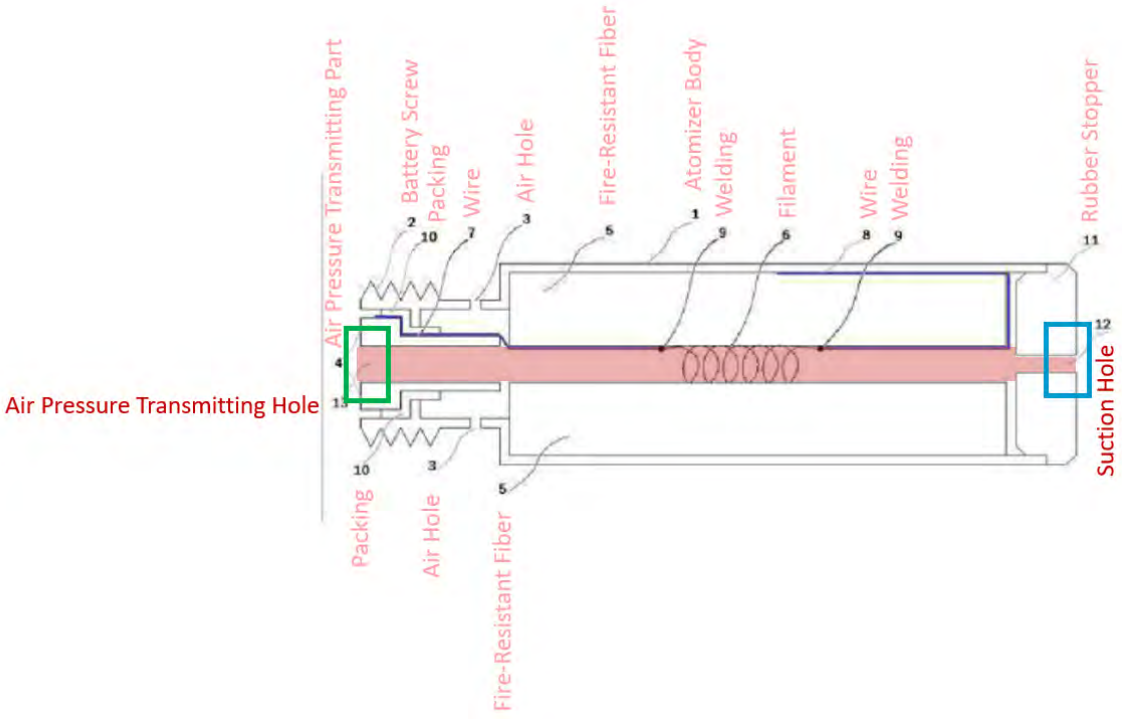
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See JX-0631 (Han '364) at FIG. 1; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 363.

Han '364 discloses a central and axial airflow passageway at least under NJOY's interpretation of the claims. For example, Han '364 discloses a cartridge with holes that allow air to flow through the cartridge. *See* JX-0631, at [0013]. For example, Han '364 discloses that if a user draws air through suction hole 12, air can flow through the cartridge (e.g., from air pressure transmitting hole 13 to suction hole 12). *See id.*, at [0013]. Air flows through the cartridge by way of an airflow passageway (annotated in red) between portions of the fire-resistant fiber 5.

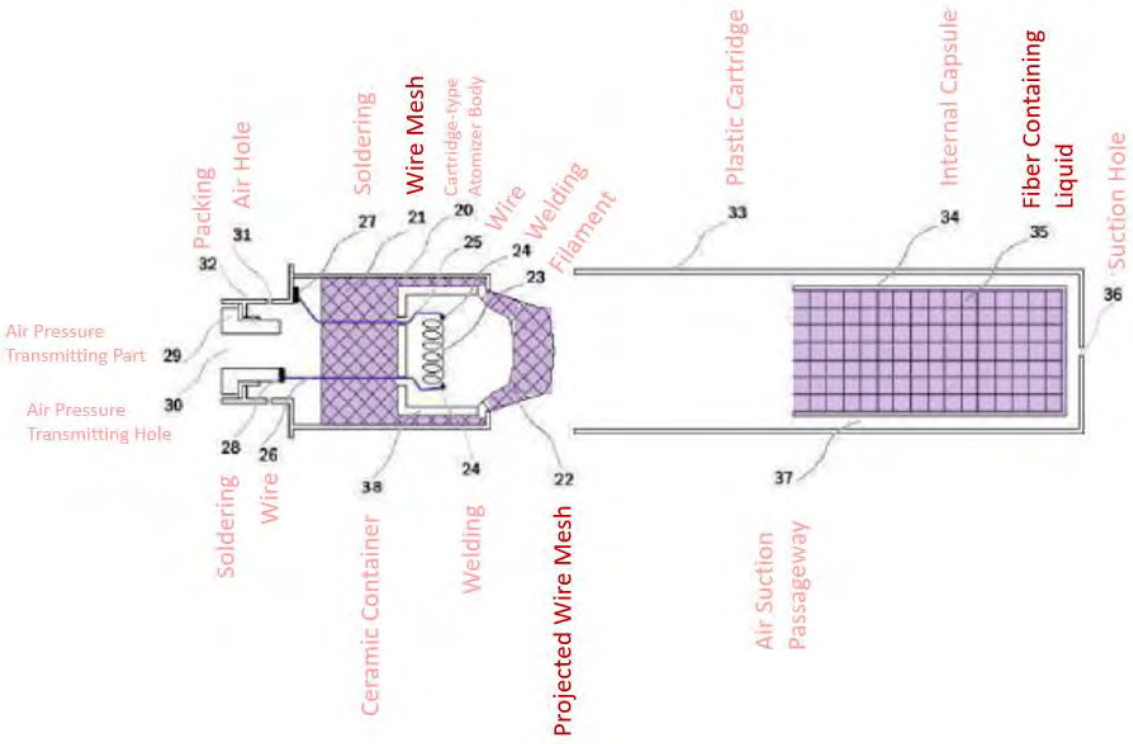
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See JX-0631 (Han '364) at FIG. 1.

Han '364 also discloses an embodiment with a transverse heating element surrounded by solution holding medium. *See id.*, at [0014]. *See also id.*, at FIG. 8 (annotated):

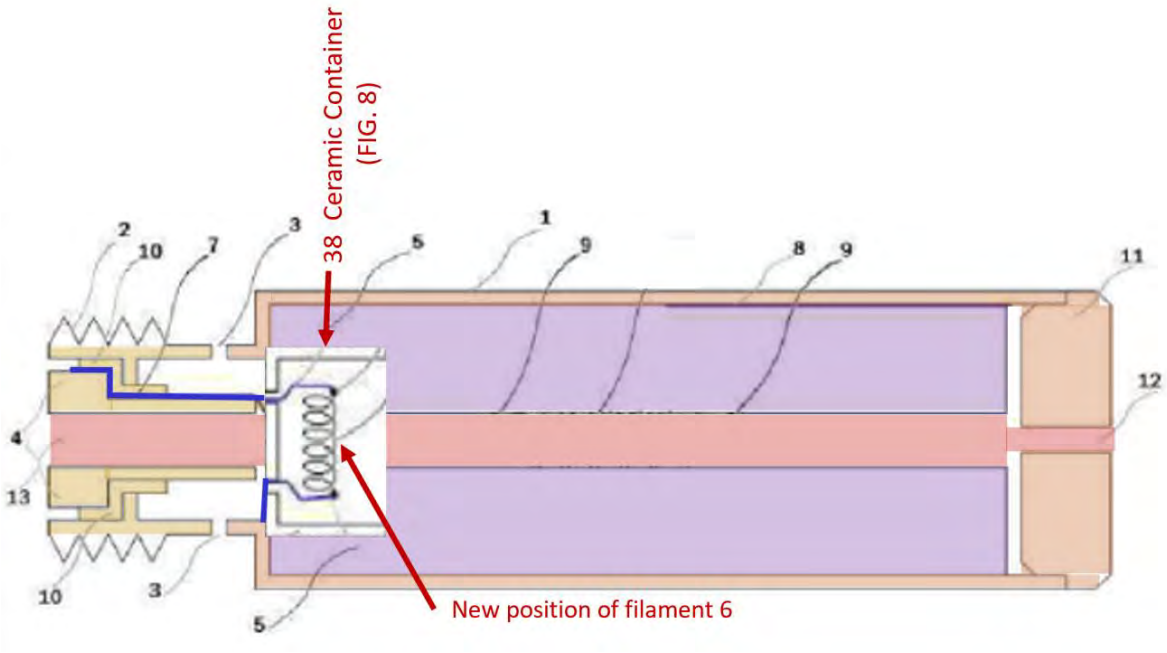
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See JX-0632C (Leinsing Opening Rpt.) at ¶ 379.

The evidence will show that Wang '927 renders obvious the use of a transverse heating element with a central and axial airflow passageway through its disclosure of the two embodiments described above. For example, a POSITA would have been motivated to make the following combination of disclosed embodiments:

[redacted]



See JX-0632C (Leinsing Opening Rpt.) at ¶¶ 392-395.

6. Cigarette Electronique

The evidence will show that the Cigarette Electronique was publicly available in the United States at least as early as October 18, 2008. *See, e.g.,* JX-0639C (Leinsing Opening Rpt.) atJX-0639C (Leinsing Opening Rpt.) at ¶¶ 413-417; JX-0624 (webpage showing Smoke Fifty-One Duo available for purchase as early as October 18, 2008); JX-0548 (Conley RJRV Tr.) at 67:7-10 (clarifying that the Smoke Fifty-One two-piece device is the same product as the Smoke Fifty-One Duo).

Further, Mr. Conley testified that he drew a sketch that depicts elements of the Smoke Fifty-One Duo as he was familiar with it. *See, e.g.,* CX-1377C (Conley 02/29/2024 Tr.) at 122:1-10. Mr. Conley also testified that the sketch was based on a design that existed prior to the Fuma device design (the Fuma device design being memorialized in a sketch dated July 31, 2009). *See, e.g.,* JX-0548 (Conley RJRV Tr.) at 34:6-8; *see also* CX-1377C (Conley 02/29/2024 Tr.) at 157:21-

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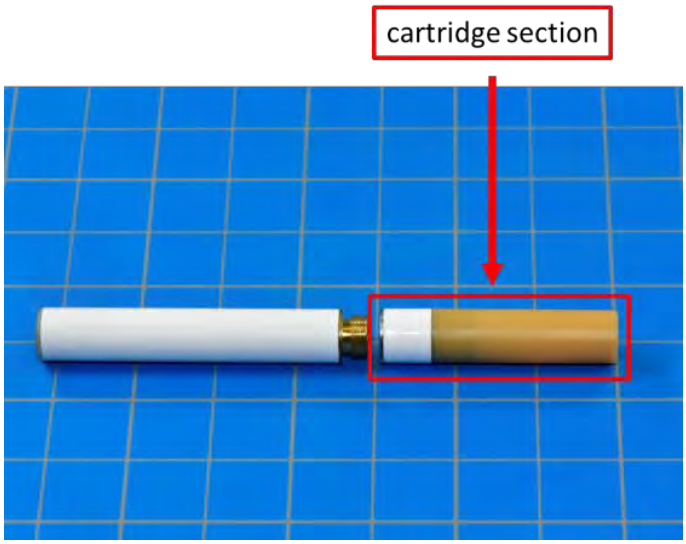
159:19. Based on this information, Mr. Conley's sketch embodying features of the Smoke Fifty-One Duo would have been made at least prior to July 31, 2009 (i.e., prior to Mr. Conley creating a sketch of the Fuma device). This is also consistent with Mr. Conley's testimony as to Smoke Fifty-One Duo cartridges's features in "later 2008" or "early 2009." *See, e.g.,* JX-0548 (Conley RJRV Tr.) at 10:11-13; *see also* CX-1377C (Conley 02/29/2024 Tr.) at 75:12-79:13; 86:5-92:25; 97:4-98:25; 136:3-17; 141:11-14.

The Cigarette Electronique qualifies as prior art to the Asserted Patents under (pre-AIA) 35 U.S.C. ¶ 102 (a) and (b). For example, the Cigarette Electronique was known or used by consumers in this country at least as of October 18, 2008, which is before July 28, 2009, the alleged date of the conception and reduction to practice. *See, e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶¶ 71, 241 (confirming NJOY is asserting aJuly 28, 2009 conception/reduction to practice date). Additionally, the Cigarette Electronique was in public use and on sale in this country at least as of October 18, 2008, which is more than one year prior to July 27, 2010, the date of the '917 application to which the Asserted Patents claim priority. *See, e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶ 69 (confirming NJOY is asserting a July 27, 2010 date). NJOY and its expert do not dispute that the Cigarette Electronique qualifies as prior art to the Asserted Patents. *See generally* CX-2726C (Vallee Reb. Rpt.) at ¶¶ 392-397.

The Cigarette Electronique device is a cig-a-like device, which includes a battery portion and a cartridge section:

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[redacted]

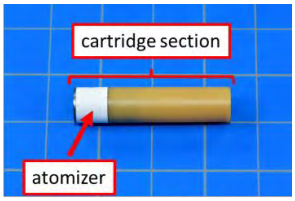


See RX-0072 at RX-0072.30; JX-0632C (Leinsing Opening Rpt.) at ¶ 517.

The cartridge section of the Cigarette Electronique device includes a removable component called an atomizer, as shown in the first photo below (far left). The second photo below shows a portion of the cartridge section that includes the solution holding medium. The third photo below (far right) shows the cartridge section "fully assembled" (*i.e.*, with the atomizer component attached to the portion of the cartridge section that includes the solution holding medium).







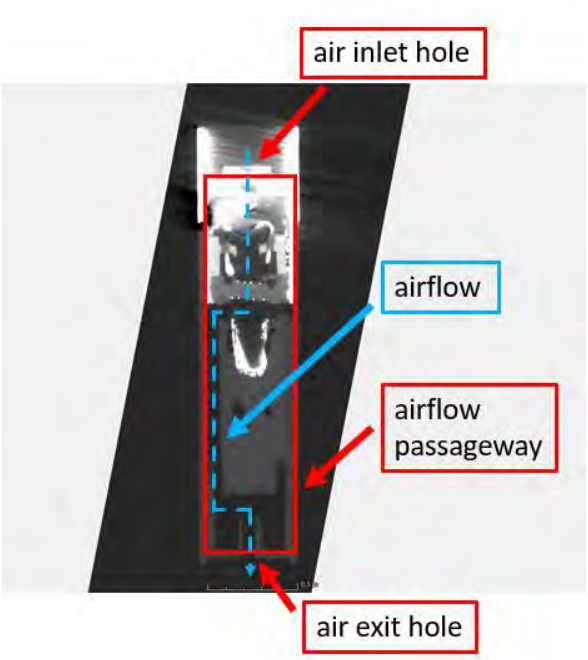
See RX-0072 at RX-0072.32 annotated in red), RX-0072 at RX-0072.74; RX-0072 at RX-0072.31.

At least under NJOY's interpretation of airflow passageways, the Cigarette Electronique device's airflow occurs within an airflow passageway defined by the housing of the cartridge portion. For example, the CT scan below shows the interior of the cartridge section of the Cigarette

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[redacted]

Electronique device, wherein the airflow passageway is a space within the interior of the cartridge section.



See JX-0401 (Photos of Cigarette Electronique) at JX-0401.5 (annotated in blue and red).

The Cigarette Electronique device discloses a transverse heating element.

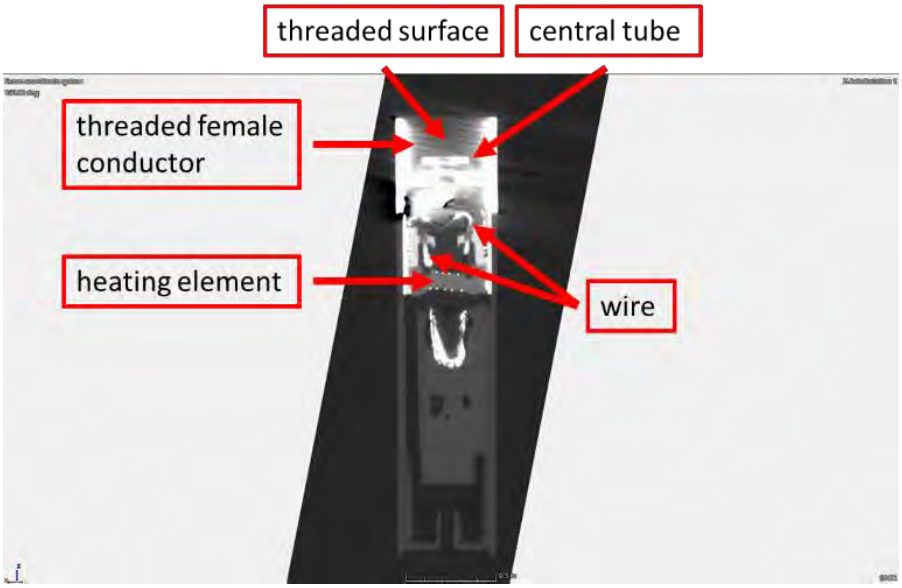


See CX-2763 at CX-2763.9.

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[redacted]

When the Cigarette Electronique is used, current flows from the battery of the power source section through the central tube and the threaded surface of the threaded female conductor. The heating coil then heats up to vaporize the e-liquid in the housing.



See JX-0401 (Photos of Cigarette Electronique) at JX-0401.5 (annotated in red).

7. NJOY NPRO

The evidence will show that NJOY's NPRO electronic cigarette (hereinafter, the "NPRO") was publicly available in the United States at least as early as August 28, 2008. *See e.g.,* JX-0632C (Leinsing Opening Rpt.) at ¶ 548; JX-0501 (showing sales of NPRO starter kit and NPRO Cartridges in 2009 before July 27, 2009); RX-1407C, NJOY's Objections and Responses to JLI's Second Set of Interrogatories to NJOY (No. 25) (02-16-2024); RX-1120C (Bonet 3/6/2024 Tr.) at 249:14-19[redacted]; JX-0618 – JX-0619.

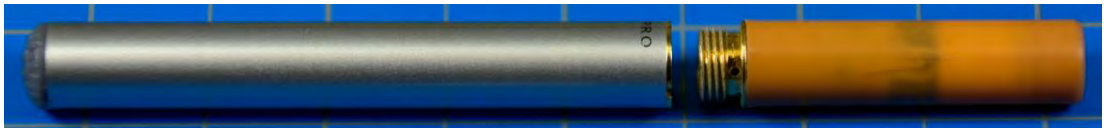
The NPRO qualifies as prior art to the Asserted Patents under (pre-AIA) 35 U.S.C. ¶ 102 (a) and (b). For example, the NPRO was known or used by consumers in this country at least as of

NJOY Exhibit 2008.0472
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[redacted]

August 28, 2008, which is before July 28, 2009, the alleged date of the conception and reduction to practice. *See, e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶¶ 71, 241 (confirming NJOY is asserting a July 28, 2009 conception/reduction to practice date). Additionally, the NPRO was in public use and on sale in this country at least as of August 28, 2008, which is more than one year prior to July 27, 2010, the date of the '917 application to which the Asserted Patents claim priority. *See, e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶ 69 (confirming NJOY is asserting a July 27, 2010 date). NJOY and its expert do not dispute that the NPRO qualifies as prior art to the Asserted Patents. *See generally* CX-2726C (Vallee Reb. Rpt.) at ¶¶ 392-397.

The NPRO E-Cig is an e-cigarette including a cartridge (the orange piece shown below) and a power source (the silver portion shown below). *See* NJOY NPRO User Guide, RX-0110C.



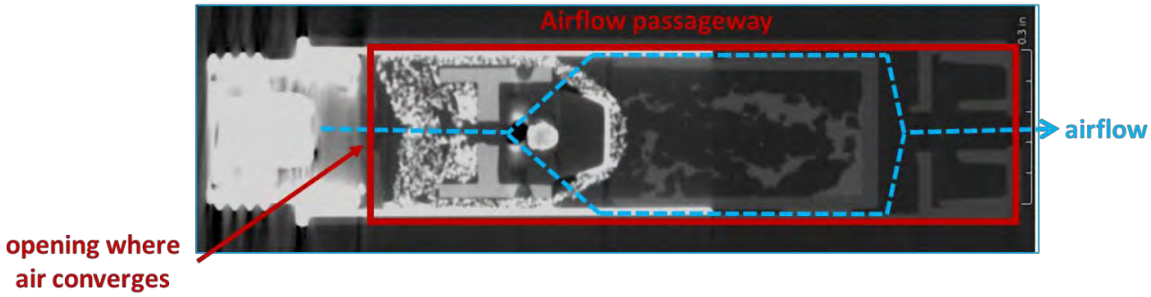
See RX-0082 (Photos of NJOY NPRO) at RX-0082.59.

[redacted]

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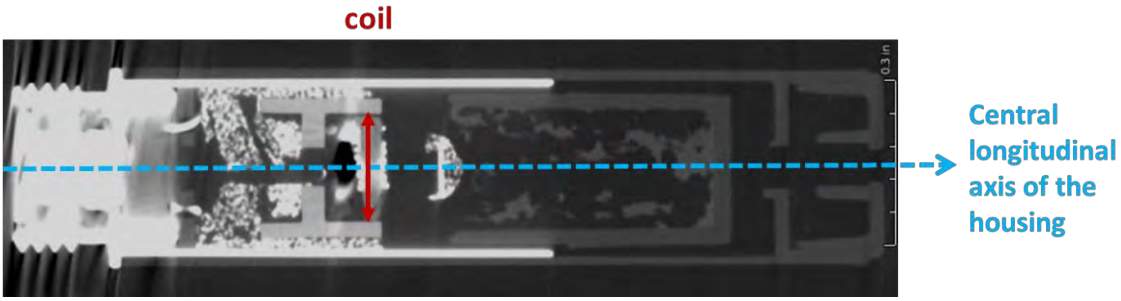
[redacted]

The NPRO discloses a central and axial airflow passageway at least as NJOY interprets the claims. For example, air coming in from the side holes converges at an opening in the housing as shown below.



See JX-0404 (CT Scans of NJOY NPRO) at JX-0404.11 (annotated in red and blue).

The NPRO also discloses a transverse heating element, which extends across the ceramic base, perpendicular to the central longitudinal axis of the housing.



See JX-0404 (NPRO Photos) at JX-0404.16 (annotated in red and blue).

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[redacted]



See RX-0082 (Photos of NJOY NPRO) at RX-0082.67; *see also* RX-1120C (Bonet 3/6/2024 Tr.) at 259:14-16.

8. NJOY NCIG

The evidence will also show that NJOY's NCIG electronic cigarette (hereinafter, the "NCIG") was publicly available in the United States at least as early as Jan. 22, 2009. *See e.g.,* JX-0632C (Leinsing Opening Rpt.) at ¶ 548; JX-0501(showing sales of NJOY Cigarette and NCIG in 2009 before July 27, 2009); NJOY's Objections and Responses to JLI's Second Set of Interrogatories to NJOY (No. 25) (02-16-2024); RX-1120C (Bonet) at 249:14-19 [redacted] JX-0618 – JX-0619.

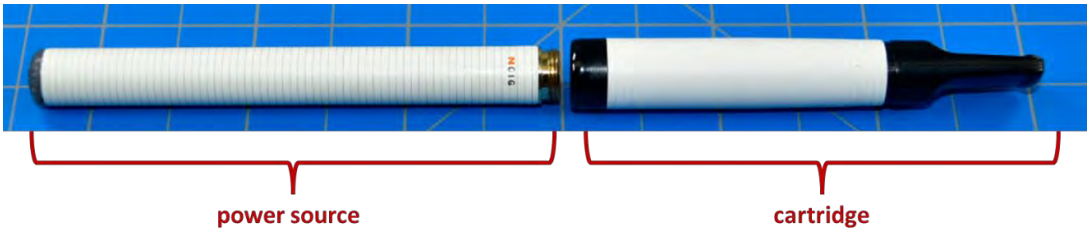
The NJOY NCIG qualifies as prior art to the Asserted Patents under (pre-AIA) 35 U.S.C. ¶ 102 (a) and (b). For example, the NCIG was known or used by consumers in this country at least as of Jan. 22, 2009, which is before July 28, 2009, the alleged date of the conception and reduction to practice. *See, e.g.,* JX-0639C (Leinsing Opening Rpt.) at JX-0639C (Leinsing Opening Rpt.) at

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[redacted]

¶ 548; CX-2157C (Vallee Opening Rpt.) at ¶¶ 71, 241 (confirming NJOY is asserting aJuly 28, 2009 conception/reduction to practice date). Additionally, the NCIG was in public use and on sale in this country at least as of Jan. 22, 2009, which is more than one year prior to July 27, 2010, the date of the '917 application to which the Asserted Patents claim priority. *See, e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶ 69 (confirming NJOY is asserting a July 27, 2010 date). NJOY and its expert do not dispute that the NCIG qualifies as prior art to the Asserted Patents. *See generally* CX-2726C (Vallee Reb. Rpt.) at ¶¶ 398-402.

The NCIG E-Cig is an e-cigarette including a cartridge portion and a power source portion. *See* RX-0109C (NJOY NCIG User Guide) at RX-0109C.1-2.



See RX-0084 (Photos of NJOY NCIG) at RX-0084.51 (annotated in red).

[redacted]

NJOY Exhibit 2008.0476
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[redacted]

The NCIG also discloses a central and axial airflow passageway as NJOY interprets the claims. For example, air coming in from the gap converges at an opening in the housing as shown below.



See JX-0402 (NCIG Photos) at JX-0402.16 (annotated in blue and red).

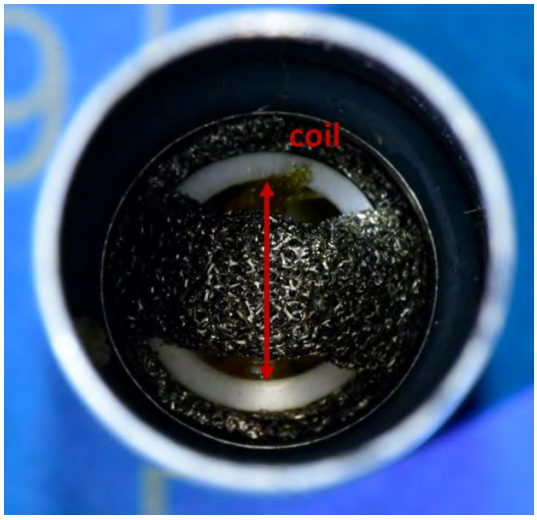
Further, the NCIG discloses the use of a transverse heating element, perpendicular to the central longitudinal axis if the housing.



See JX-0402 (NCIG Photos) at JX-0402.16 (annotated in red and blue).

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[redacted]



See RX-0084 (Photos of NJOY NCIG) at RX-0084.87 (annotated in red). *See also* RX-1120C (Bonet 3/6/2024 Tr.) at 259:14-16.

9. NPRO Style

The evidence will show that the NJOY NPRO Style (hereinafter "NPRO Style") was publicly available in the United States at least as early as October 18, 2008. *See, e.g,* RX-0112C (NJOY Product Approximate Availability); RX-0113C (NJOY Product Approximate Availability Date).

The NPRO Style qualifies as prior art to the Asserted Patents under (pre-AIA) 35 U.S.C. ¶ 102 (a) and (b). For example, the NPRO Style was known or used by consumers in this country at least as of October 18, 2008, which is before July 28, 2009, the alleged date of the conception and reduction to practice. *See, e.g., id.;* CX-2157C (Vallee Opening Rpt.) at ¶¶ 71, 241 (confirming July 28, 2009 conception/reduction to practice date). Additionally, the NPRO Style was in public use and on sale in this country at least as of October 18, 2008, which is more than one year prior to July 27, 2010, the date of the '917 application to which the Asserted Patents claim priority. *See, e.g., id.;* CX-2157C (Vallee Opening Rpt.) at ¶ 69 (confirming July 27, 2010 date).

NJOY Exhibit 2008.0478
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[redacted]

The NPRO Style is an electronic cigarette. *See, e.g.,* RX-0080 (Photos of NPRO Style); RPX-0008 (Physical sample of NPRO Style); JX-0405 (CT Scans of NPRO Style); RX-0094 (Raw CT Scan of NPRO Style); *see also* JX-0632C (Leinsing Invalidity Rpt.) at ¶ 641-642. The NPRO Style includes two portions, (1) the battery portion, and (2) the cartomizer portion. *See, e.g., id.;* RX-0080 (Photos of NPRO Style) at RX-0080.65. The battery portion and the cartomizer portion are connected through threaded conductors – the battery portion includes a threaded female conductor, and the cartomizer portion includes a threaded male conductor. *Id.* As shown below, when the two portions are connected and a user inhales from the mouthpiece end, the e-cigarette is turned on, and the e-liquid held in the cartomizer will be vaporized for oral provision to the user. *Id.*



See RX-0080 (Photos of NPRO Style) at RX-0080.65*; see also* JX-0632C (Leinsing Invalidity Rpt.) at ¶¶ 641-643.





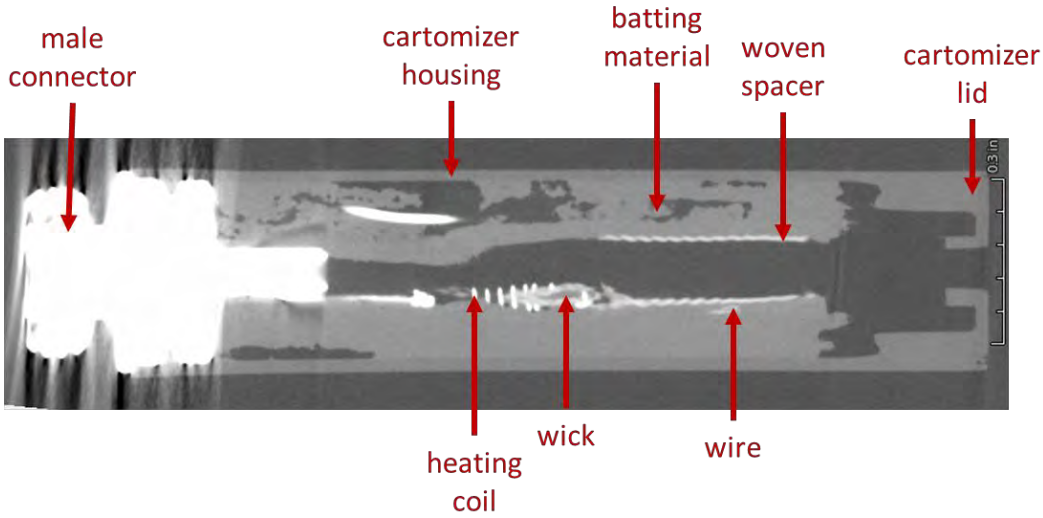
See RX-0080 (Photos of NPRO Style) at RX-0080.24 (left – battery portion with threaded female conductor); *Id.* at RX-0080.141 (right - cartomizer portion with threaded male conductor); *see also id.* at RX-0080.68.

The cartomizer of NPRO Style includes the threaded male conductor, batting material, a heating coil, a wick, wires, and a woven spacer, among others. The brightness of the male

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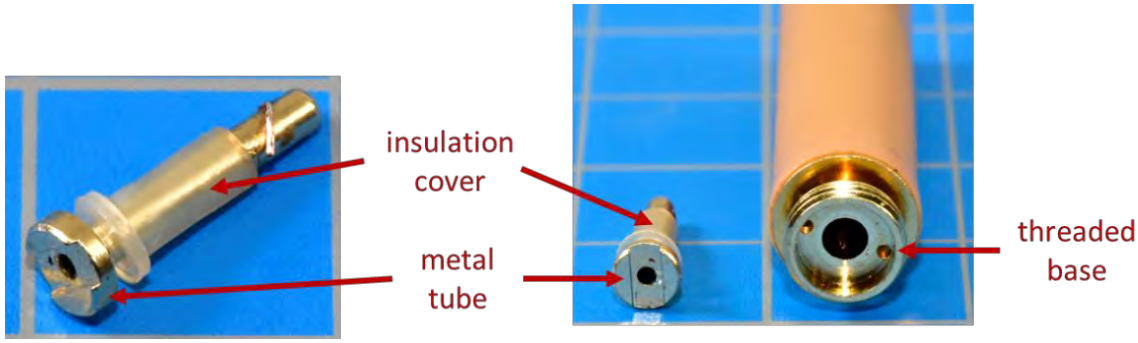
[redacted]

conductor (as shown in the CT scan below) indicates it is made of a metal. The CT scan also shows that the NPRO Style has a central airflow passageway that allows air to pass from one end to another in a straight path, at least as NJOY interprets the claims.



See JX-0405 (CT Scans of NPRO Style) at JX-0405.22; *see also* JX-0632C (Leinsing Invalidity Rpt.) at ¶¶ 641-643.

The threaded male conductor includes the metal tube and the threaded base, where the metal tube is insulated from the threaded base.

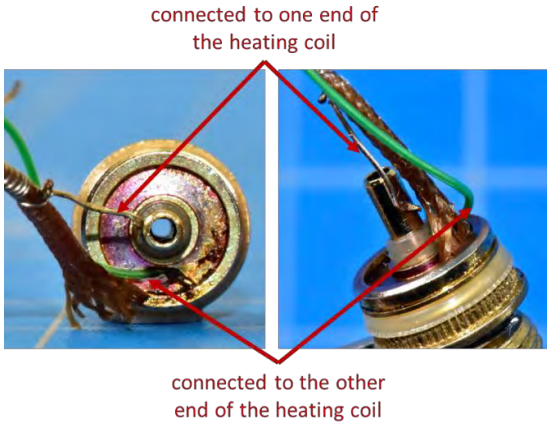


See RX-0080 (Photos of NPRO Style) at RX-0080.77 (left – metal tube with the insulation cover); *id.* at RX-0080.74 (right - metal tube with the insulation cover on the left and the threaded base on the cartomizer on the right).

NJOY Exhibit 2008.0480
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[redacted]

The teardown photos also show that one end of the heating coil is connected to the metal tube and the other end of the coil is connected to the threaded base. When the battery portion is connected to the cartomizer, one terminal of the battery is connected to the cartomizer via the threaded base and the other terminal of the battery is connected to the cartomizer via the metal tube.

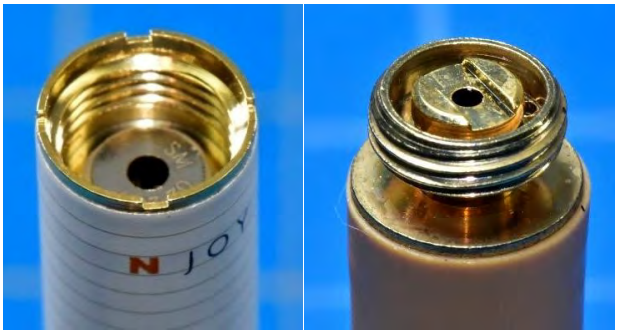


See RX-0080 (Photos of NPRO Style) at RX-0080.108, 125.

NPRO Style also includes an air intake hole in the housing and on the end of the cartomizer, which is on the end of the metal tube. JX-0632C (Leinsing Opening Rpt.) at ¶ 644-646. As shown in the annotated photos below, the air intake hole is in the center and on the end of the center conductor. The center conductor also includes a groove on the protruded surface so that when the cartomizer is screwed into the battery portion, air coming into the center of the e-cigarette can flow to the aperture via the groove.

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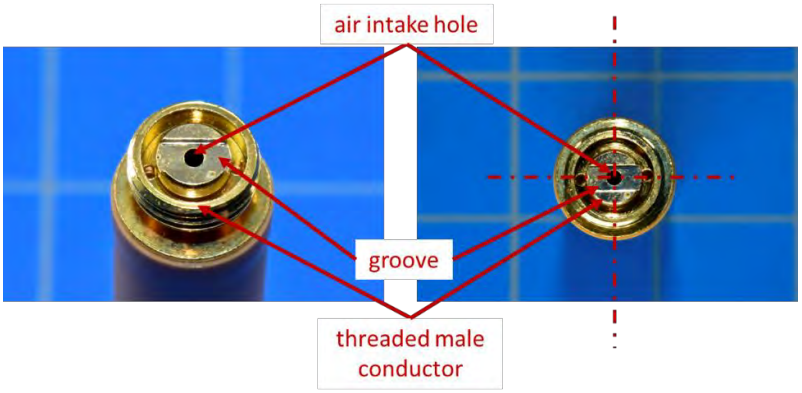
[redacted]

1. 

See RX-0080 (Photos of NPRO Style) at RX-0080.24 (left – battery portion with threaded female conductor); *id.* at RX-0080.141 (right - cartomizer portion with threaded male conductor); *see also id.* at RX-0080.68.



See RX-0080 (Photos of NPRO Style) at RX-0080.32 (annotated in red).

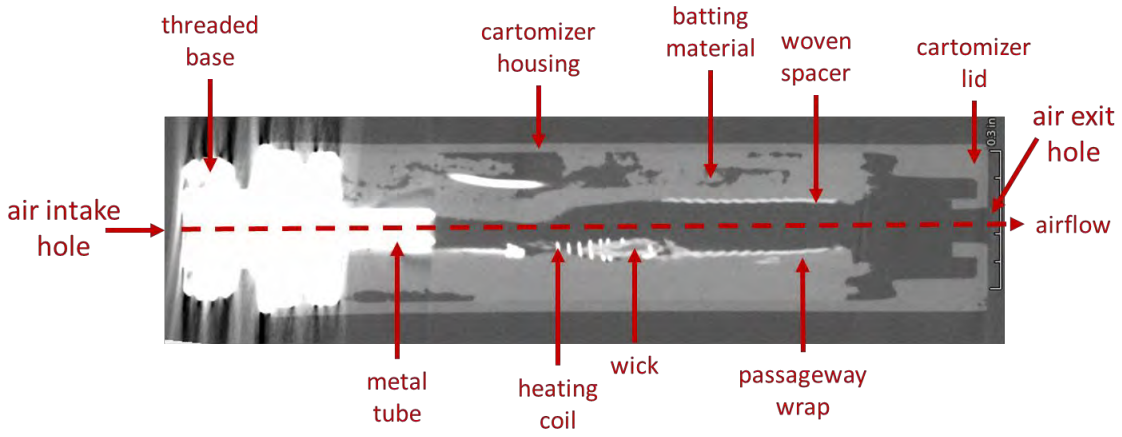


See RX-0080 (Photos of NPRO Style) at RX-0080.34, 35 (annotated in red).

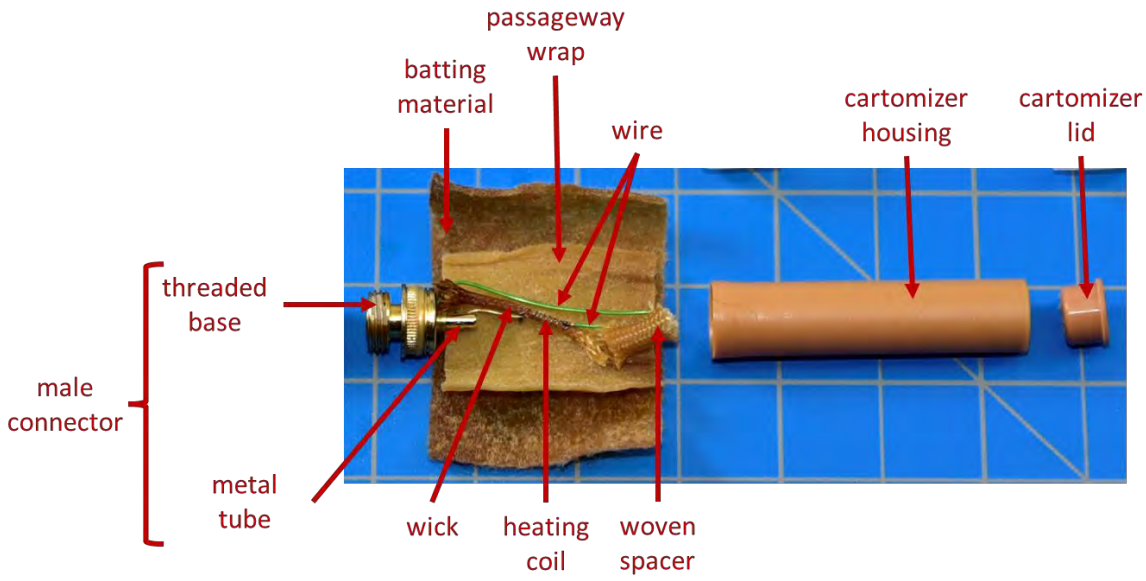
The NPRO Style includes a central and axial airflow passageway as shown in the CT scan below, at least as NJOY interprets the claims. JX-0632C (Leinsing Opening Rpt.) at ¶ 647. For example, the NPRO Style includes a passageway wrap made of an absorbent material that wraps around the metal tube, the heating coil and the wick, and the woven spacer to hold a central and

[redacted]

axial channel in the housing to allow the air to flow from the air intake hole all the way to the air exit hole in a straight line at least as NJOY interprets the claims.



See JX-0405 (NPRO Style Photos) at JX-0405.22.



See RX-0080 (Photos of NPRO Style) at RX-0080.126 (annotated in red).

10. Red Dragon

The evidence will show that the Red Dragon e-cigarette was publicly available in the United States at least as early as Jan. 6, 2009. *See, e.g.,* JX-0632C (Leinsing Opening Rpt.) at ¶¶

[redacted]

461-472. For example, JLI obtained, and Mr. Leinsing inspected two Red Dragon starter kits, referred to as "Red Dragon Kit #1" and "Red Dragon Kit #2," each of which bears a date stamp of November 23, 2008. *See id;* RX-0076 at RX-0076.1(Red Dragon Kit 1 rear photo, showing date stamp); RX-0074 (Photos of Red Dragon Kit #1) at RX-0074.81 (Red Dragon Kit 2 rear photo, showing date stamp). Additionally, internet archive records demonstrate that the Red Dragon products were on sale in the U.S. as of January 13, 2009. *See* JX-0604 (Wayback Machine Archive of buyreddragon.com on Jan. 13, 2009); JX-0611 (Wayback Machine Archive of buyreddragon.com/shop/Index.php/kits on Jan. 23, 2009). Nick Evans, the founder and VP of Red Dragon Products, provided a declaration that attests to the Red Dragon products' availability as of at least January 6, 2009. *See, e.g.,* RX-0097 (Declaration of Nick Evans); RX-1126C (Evans) at 13:12-17 (testifying that Red Dragon products were first sold in January 6, 2009), 17:5-18:6, 19:13-20; 20:3-21:13, 21:24-23:25, 24:1-25:19, 26:18-28:4, 28:5-29:11. For example, Mr. Evans cites to an invoice from January 6, 2009 demonstrates that Red Dragon products were sold in the U.S. as of at least that date. *See* RX-0097 at RX.0097.3, 9-12 (Evans Decl. Ex. 1).

The Red Dragon qualifies as prior art to the Asserted Patents under (pre-AIA) 35 U.S.C. ¶ 102 (a) and (b). For example, the Red Dragon was known or used by consumers in this country at least as of Jan. 6, 2009, which is before July 28, 2009, the alleged date of the conception and reduction to practice. *See* CX-2157C (Vallee Opening Rpt.) at ¶¶ 71, 241 (confirming July 28, 2009 conception/reduction to practice date). Additionally, the Red Dragon was in public use and on sale in this country at least as of Jan. 6, 2009, which is more than one year prior to July 27, 2010, the date of the '917 application to which the Asserted Patents claim priority. *See* CX-2157C (Vallee Opening Rpt.) at ¶ 69 (confirming July 27, 2010 date).

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The evidence will also show that the Red Dragon products analyzed in this case have the same structure as the Red Dragon products that were on sale in the U.S. as of at least January 6, 2009. For example, Mr. Evans testified that the cartridges in the Red Dragon products on sale as of at least January 6, 2009 were the same as the cartridges in the Red Dragon Kit 1. *See e.g.* RX-1126C (Evans) at 26:24-27:25; 77:2-79:14.

The evidence will also show that Mr. Leinsing had CT scans performed Red Dragon products coming from Kit # 1 and Kit # 2. NJOY may argue that the CT scans of the Red Dragon Kit #1 and Kit #2 are actually scans from the same device from different angles, but this is incorrect. For example, the CT scans from the Red Dragon Kit #1 have file names including "RD3PS-1." Indeed, there were scans done of the Kit #1 from different angles, identified in the file names of the documents produced to NJOY, including a scan done every fifteen rotational degrees such as "0Deg[rees]," "15Deg[rees]," "30Deg[rees]," "45Deg[rees]," "60Deg[rees]," "75Deg[rees]," "90Deg[rees]," and onward to "345Deg[rees]." *See* JLI-ITC1372_00980343- JLI-ITC1372_00980369. These views collectively provide the full 360-degree information about the cartridge scanned from Kit #1. The CT scans from the Red Dragon Kit #2 on the other hand have file names including "RDS-1," and there were also were scans done of the Kit #2 in fifteen degree intervals, identified in the file names of the documents produced to NJOY, including "0Deg[rees]," "15Deg[rees]," "30Deg[rees]," "45Deg[rees]," "60Deg[rees]," "75Deg[rees]," "90Deg[rees]," and onward to "345Deg[rees]." *See* JLI-ITC1372_00980879- JLI-ITC1372_00980903. These views collectively provide the full 360-degree information about the cartridge scanned from Kit #2, and demonstrate that it is different from Kit #1 because the cartridges have a different amount of internal deformation due to the passage of time, but also because the Kit #2 was not removed from its package, so the power portion of the e-cigarette is visible in all such scans as well.

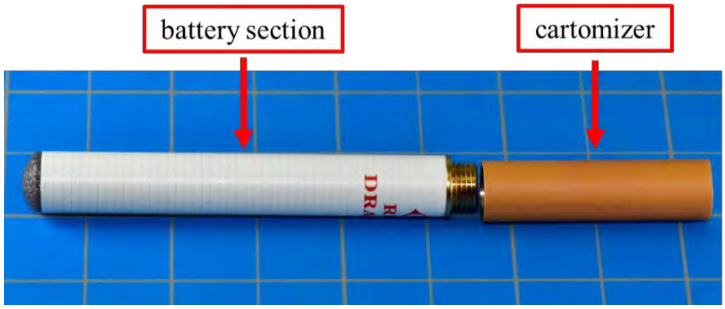
NJOY Exhibit 2008.0485
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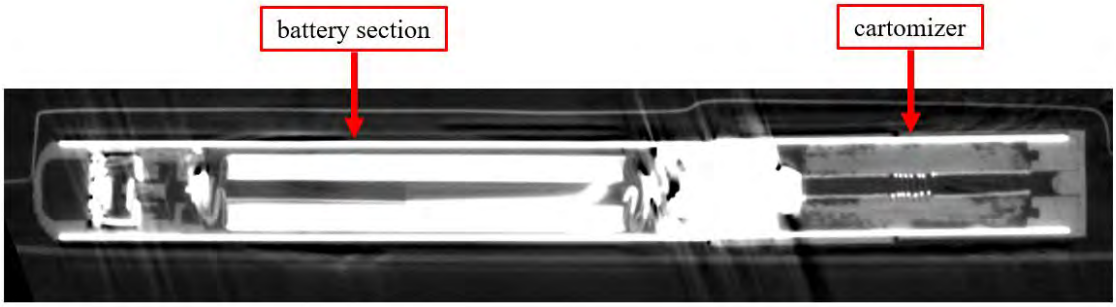
Moreover, the raw CT scan data of both kits (and indeed all products scanned) was produced to NJOY, so NJOY could generate any views it desired to compare the two kits for itself to confirm that they are indeed separate products. *See* JLI-ITC1372_00980870; JLI-ITC1372_00980871.

The Private Parties' experts agree that the Smoke Fifty-One Duo has a similar structure and design as the Red Dragon. *See* JX-0639C (Leinsing Opening Rpt.) at ¶ 472; Vallee Reb. Rpt. ¶ 320.

The Red Dragon includes two sections: (1) a battery section and (2) a cartomizer.



See RX-0074 (Photos of Red Dragon Kit #1) at RX-0074.43 (annotated in red). *See also* RX-1126C (Evans) at 8:24-9:9.

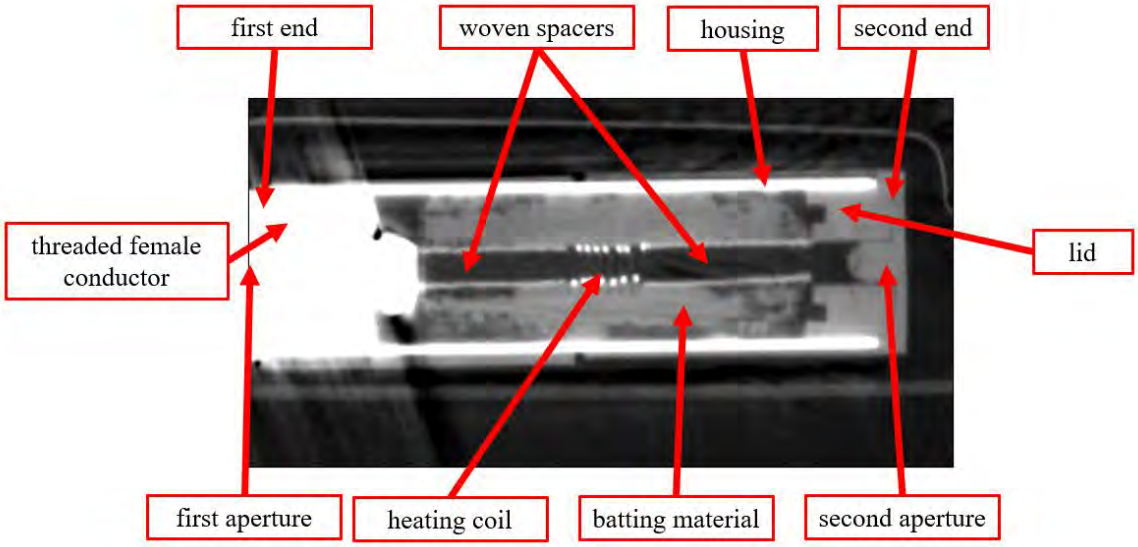


See RX-0077 at RX-0077.22 (annotated).

The Red Dragon discloses a central and axial airflow passageway, a solution holding medium, and heating element within the cartridge portion.

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[redacted]



See RX-0077 at RX-0077.22 (annotated in red).

11. Smoke Fifty-One Duo

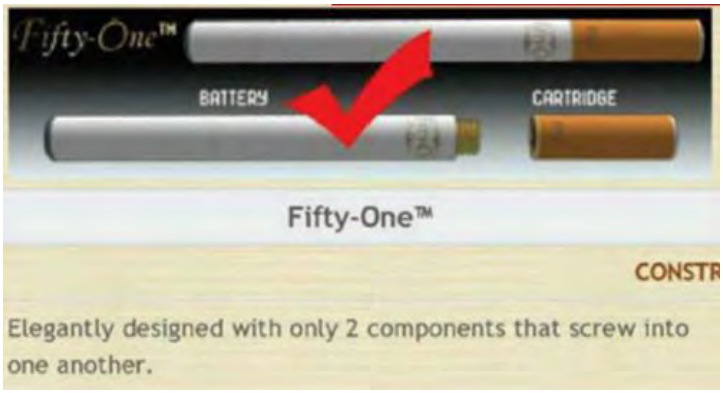
The evidence will show that the Smoke Fifty-One Duo was publicly available in the United States at least as early as October 18, 2008. *See, e.g.,* JX-0632C (Leinsing Opening Rpt.) at ¶¶ 415-417; JX-0624; JX-0548 (Conley RJRV Tr.); JX-0614; RX-0129C (Wang Declaration), at ¶¶ 3, 12, 15.

The Smoke Fifty-One Duo qualifies as prior art to the Asserted Patents under (pre-AIA) 35 U.S.C. ¶ 102 (a) and (b). For example, the Smoke Fifty-One Duo was known or used by consumers in this country at least as of October 18, 2008, which is before July 28, 2009, the alleged date of the conception and reduction to practice. *See, e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶¶ 71, 241 (confirmingJuly 28, 2009 conception/reduction to practice date). Additionally, the Smoke Fifty-One Duo was in public use and on sale in this country at least as of October 18, 2008, which is more than one year prior to July 27, 2010, the date of the '917 application to which the Asserted Patents claim priority. *See, e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶ 69 (confirming July 27, 2010 date). *See also* Conley 2024-02-29 Tr. at 95:7-12.

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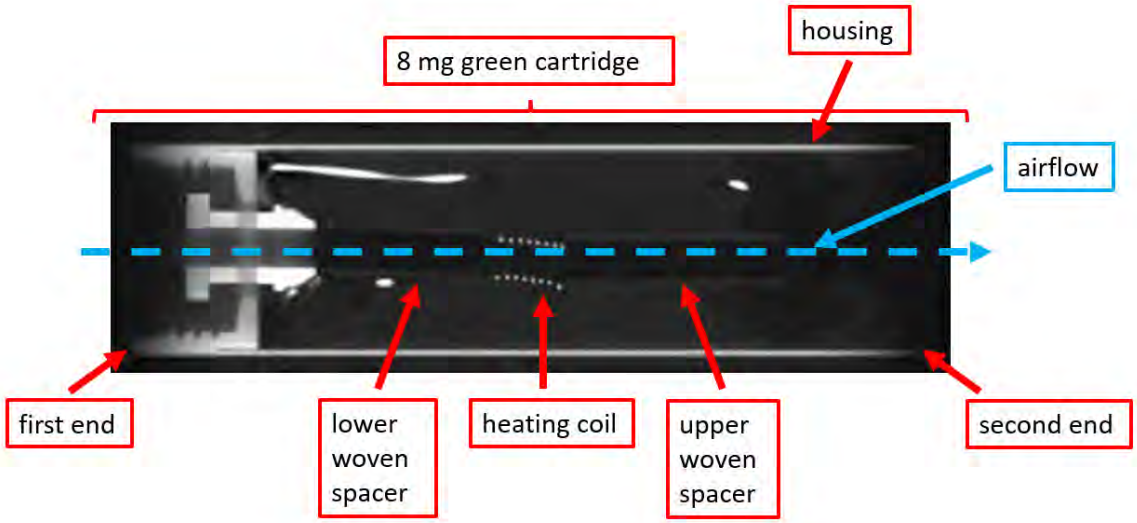
[redacted]

The Smoke Fifty-One Duo is an electronic cigarette. For example, the below image is a Wayback Machine capture of the Smoke Fifty-One website on October 18, 2008 (hereinafter, "the Wayback Machine capture of the Smoke Fifty-One website"), in which the Smoke Fifty-One Duo is advertised as an electronic cigarette having a battery portion and a cartridge portion.



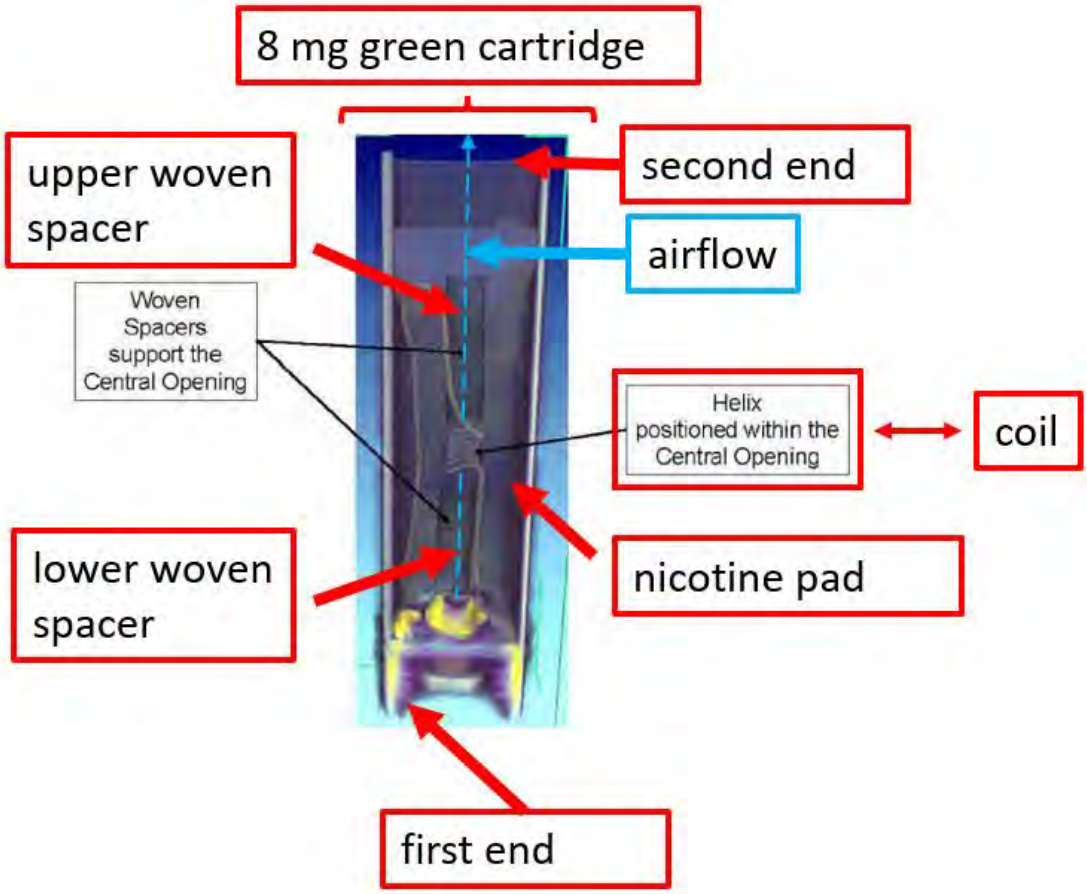
See RX-0151C (Collins Rpt.) at RX-0151C.130 (citing JX-0624 at JX-0624.2 (annotated in red)).

The Smoke Fifty-One Duo discloses a central and axial airflow passageway, solution holding medium, and heating element all within the cartridge portion:



[redacted]

See RX-0130C (Declaration of Yardimici) at RX-0130C.38; JX-0632C (Leinsing Opening Rpt.) at ¶ 443.



See RX-0130C (Declaration of Yardimici) at RX-0130C.29; *see also* CX-1377C (Conley 02/29/2024 Tr.) at 95:7-99:3; 136:3-17; 141:11-14; JX-0632C (Leinsing Opening Rpt.) at ¶ 443.

12. Fuma Prototype

NJOY and Mr. Conley allege that the Fuma prototype that Mr. Conley demonstrated and offered for sale at the Tri-State Candy and Tobacco Convention on August 12, 2009 (hereinafter, the "Fuma Prototype") embodies all of the Asserted Claims. *See e.g.*, NJOY's Eleventh Supplemental Responses and Objections to JLI's First Set of Rogs (ROG No. 3); NJOY's Fifteenth

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[redacted]

Supplemental Responses and Objections to JLI's First Set of Rogs (hereinafter, "NJOY's Final Burden Contentions"). NJOY and Mr. Conley have alleged that the Fuma design and device did not change over time, and that the device photographed and mapped to the asserted claims in Mr. Conley's sworn conception declaration to the USPTO, and the Fuma device made available for inspection in this case, as well as the drawing relied on for conception and reduction to practice all concern the same device, demonstrated publicly and sold in 2009. If that is the case, in the event the Asserted Claims are not entitled to an effective filing date prior to one year from the public display and/or sale in the U.S. of the Fuma prototype or device, *i.e.* before August 12, 2010 (one year after prototype demonstration), September 17, 2010 (one year after delivery to Fuma of commercial product for sale), and/or November 5, 2010 (one year after invoice to customer for Fuma device order), NJOY's own allegations that the Fuma protype embodies all claims, and with Mr. Leinsing's analysis, demonstrate the claims are invalid under 102(b). *See e.g.*, 2024-02-28 NJOY's Thirteenth Supplemental Responses and Objections to JLI's First Set of Rogs (ROG No. 3) (hereinafter, "NJOY's 13th Supp. ROG Responses") at 4 (contending that the Fuma Prototypes "were demonstrated at the Tri-State Tobacco and Candy Convention" by August 12, 2009); *id.* (contending that the first production run of the Fuma Commercial Devices occurred by no later than September 17, 2009); *id.* at 7 (contending that Mr. Conley "provide[d] appropriate instructions to the fabricators in China" before "July 28, 2009 when they [Mr. Conley and Mr. Hillenbrandt] were instructed by their supplier to pay for prototypes."); *id*. at 7-8 (contending that the Fuma Prototypes were delivered to the U.S. before August 12, 2009); *id.* at 8 (contending that Mr. Conley "demonstrated his prototype device and received orders for the same" at the Tri-State Candy and Tobacco Convention between August 12-14, 2009); *id.* at 8 (contending that "[a]n order of the Fuma patented devices for commercial sale was delivered to Fuma in September 2009"); *id*.

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(contending that "Fuma was invoiced for its first shipment of its new E-Cigarette for commercial sale" on September 17, 2009); *see also* NJOY's Final Burden Contentions at 4-32. As explained in Section IV.C.1, the effective filing date is 2012 or later, and so the claims are invalid under 102(b).

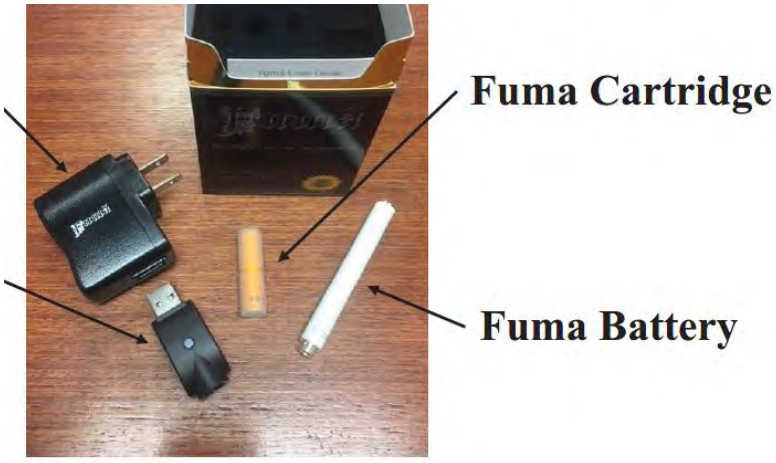
NJOY produced physical samples of the Fuma Electronic Cigarette Starter Kit, which were commercially sold. NJOY contends that there are no material differences between the Fuma Prototype and the Fuma Commercial Devices. *See* NJOY's Final Burden Contentions at 29 ("[f]or purposes of being embodiments of the claimed inventions, there are no material differences between the devices first offered for commercial sale and the prototype device that Mr. Conley demonstrated at the Tri-State Candy and Tobacco Convention in August 2009.").

For example, the Fuma Prototype includes an electronic cigarette. *See* Attachment A to NJOY's 13th Supp. ROG Responses (hereinafter, the "'864 Priority Chart"); Attachment B to NJOY's 13th Supp. ROG Responses (hereinafter, the "'881 Priority Chart"); Attachment C to NJOY's 13th Supp. ROG Responses (hereinafter, "CRTP Exhibit C"); Attachment D to NJOY's 13th Supp. ROG Responses (hereinafter, "Conley '864 Declaration"); Attachment D – Exhibit A to NJOY's 13th Supp. ROG Responses (hereinafter, "CRTP Exhibit A"); Attachment E to NJOY's 13th Supp. ROG Responses (hereinafter, "CRTP Exhibit E"); Attachment F to NJOY's 13th Supp. ROG Responses (hereinafter, "Conley '881 Declaration"); *see also* Attachments A & B to NJOY's Final Burden Contentions; JX-0632C (Leinsing Opening Rpt.) at ¶ 620.

The Fuma Prototype includes a cartridge and a power source which further includes a battery, shown in the photo below. *See e.g.,* '864 Priority Chart at 1; *see also* Attachments A & B to NJOY's Final Burden Contentions.

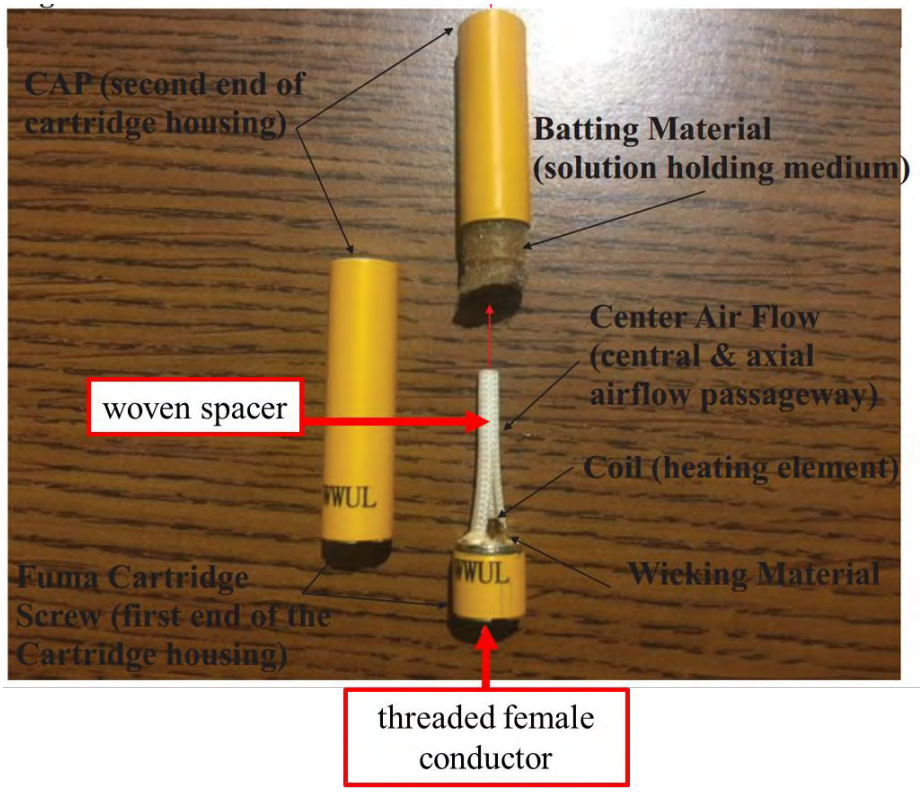
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[redacted]



See '864 Priority Chart at 1 citing CRTP Exhibit A at Fig. 2.

The Fuma Cartridge includes multiple components in the housing, including at least a woven spacer, a batting material, a heating coil, a wick, a threaded female conductor, the e-liquid absorbed by the batting material, and the cap.



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[redacted]

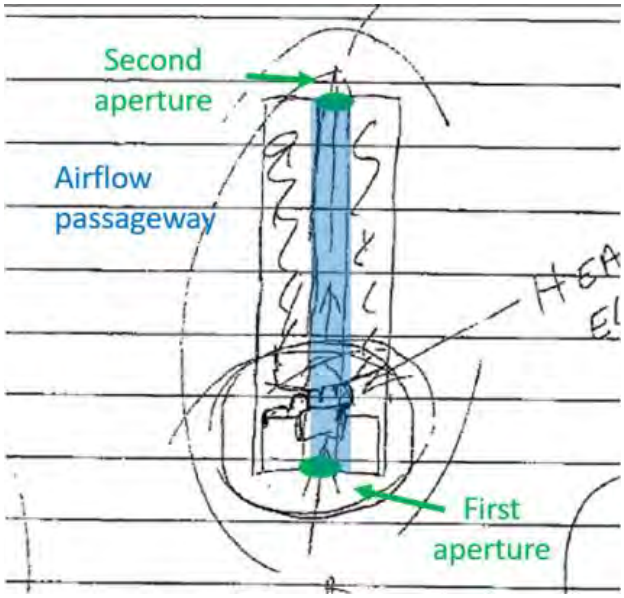
See CRTP Exhibit A at Fig. 8 (annotated in red). *See also* RX-1135C (Steiger 03/05/2024 Tr.) at 69:13-24; JX-0632C (Leinsing Opening Rpt.) at ¶ 624.

The Fuma Cartridge and the Fuma Battery are connected via the threaded conductors. See e.g., '864 Priority Chart at 5; see also, e.g., Fuma Prototype Fab Drawings, CRTP Attachment E at FUMA-INSPECTION-0037; JX-0632C (Leinsing Opening Rpt.) at ¶ 625. When screwed together, the Fuma Cartridge is electrically and mechanically coupled to the Fuma Battery, which provides power to the heating coil. Id.

The Fuma Prototype includes a woven spacer airflow passageway, at least as NJOY interprets the claims. For example, the woven spacer supports an opening in the center of the housing, extending from the air inlet on the first end to the air exit hole on the second end. See e.g., '864 Priority Chart at 12-15; CRTP Attachment C; CRTP Attachment D at Fig. 6; CRTP Attachment E at FUMA-INSPECTION-0037; JX-0632C (Leinsing Opening Rpt.) at ¶ 630. When air comes in from the air inlet on the first end, the air will flow through the housing, around the heating coil, converge after the heating coil, and pass through the space inside the woven spacer to exit the housing from the air exit hole. Id.

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[redacted]

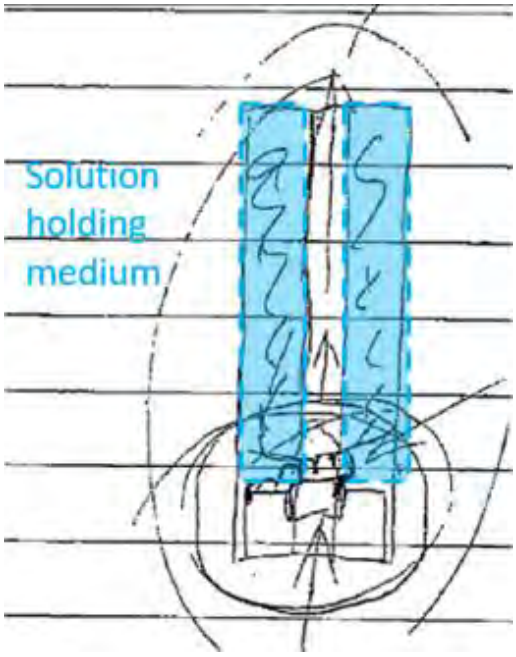


See RX-1558C, '864 Priority Chart at 14 (citing CRTP Attachment C); *see also* '881 Priority Chart at 10.

The Fuma Prototype includes batting material, which is an absorbent material and reservoir that holds the solution. *See* RX-1558C, '864 Priority Chart at 2-3; '881 Priority Chart at 14-15 and 37; JX-0632C (Leinsing Opening Rpt.) at ¶ 633.

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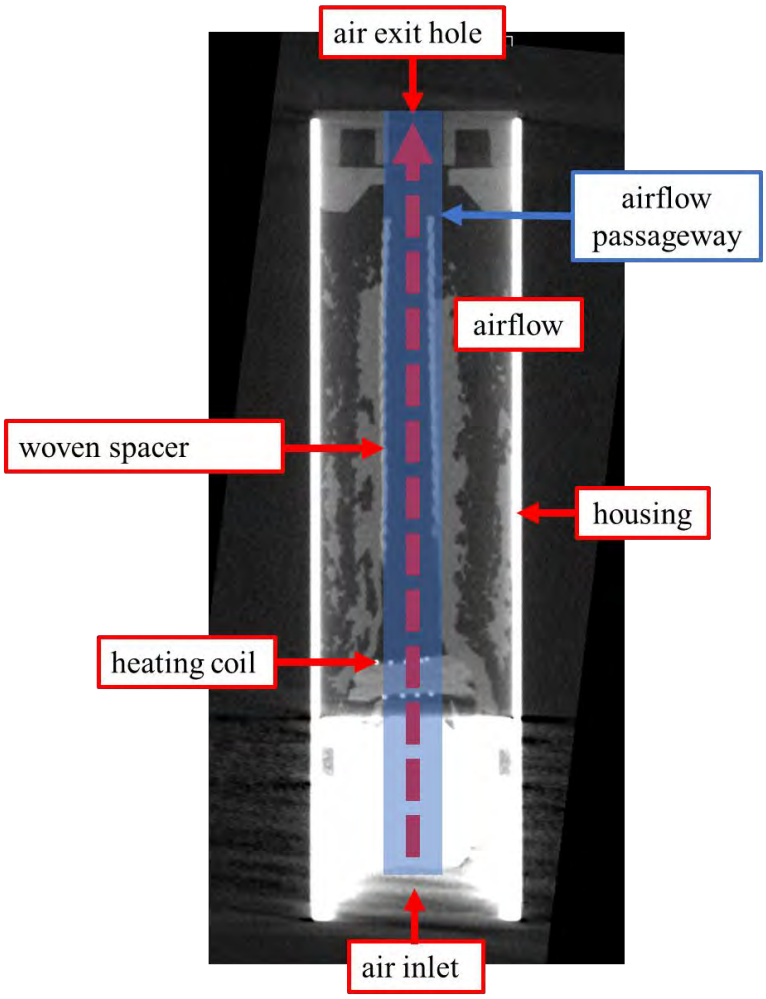
[redacted]



See ’864 Priority Chart at 2 (citing CRTP Attachment C); ’881 Priority Chart at 14.

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See RX-0079 (CT scans of Fuma Starter Kit) at RX-0079.17 (annotated in red and blue); JX-0632C (Leinsing Opening Rpt.) at ¶ 633.

ii. Anticipation / Obviousness

a. Motivation to combine references

1. Xia '610 and Wang '554 and Fang '044 and Smoke Fifty-One Duo

The evidence will show that a POSITA would have been motivated to combine Xia '610 with Wang '554 and/or Fang '044 and/or Smoke Fifty-One Duo, as they are each directed to the same endeavor: reducing the negative effects of smoking. *See, e.g.,* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 5-13. For example, Xia '610 explains that "Today, 'smoking is harmful to

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health' has become common knowledge. There are still more than 1 billion smokers in the world. The U.S. Environmental Protection Agency currently declares tobacco smoke in air as a Class A carcinogen." JX-0596 (Xia '610) at JX-0596.10. Xia '610 asserts that "The utility model has similar shape with the cigarette, is small, easy to carry, simple in structure and low in cost, meets the using habits of smokers, does not have noxious substances of tar and carbon monoxide, and the like, reduces the cancerogenic risk, and does not have fire hazard; in addition, the aspirated smoke does not cause environmental pollution." JX-0596 (Xia '610) at JX-0596.2. Similarly, Wang '554 states that in common cigarettes, "tobacco is directly ignited by an open flame, smoke and soot are produced at the same time, the tobacco burning process cannot be freely controlled, and smokers affect others and endanger themselves. Especially in public places, smoking is uncivilized and has potential fire hazards, and the global call for smoking bans is getting stronger and stronger." RX-0005 (Wang '554) at RX-0005.4. Wang asserts that "[a] novel electronic pure cigarette is created, thereby improving the physical and mental health of wide smokers and meeting the requirements of modern civilization." RX-0005 (Wang '554) at RX-0005.2. Fang '044 also notes the dangers of smoking: "Smoking is a serious threat to human health. There are many smokers in China. In order to make smokers quit smoking, there are many methods to quit smoking." JX-0595 (Fang '044) at JX-0595.4. Fang '044 asserts that "the utility model designs an electronic cigarette which is low in manufacturing cost and convenient to use, and produces the same effect as tobacco smoking." JX-0595 (Fang '044) at JX-0595.4. Fang '044 also explains that through its use, "while retaining that tobacco may make the user generate excitement and mouthfeel, the carcinogenic risk of the human bodies caused by tar in the cigarette can be completely eliminated, and the smoker can achieve the goal of gradually quitting smoking." JX-0595 (Fang '044) at JX-0595.6. Smoke Fifty-One Duo advertises that it "does not contain

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ingredients such as tar, arsenic, ammonia or other chemical and carcinogenic substances typically found in traditional tobacco cigarettes." *See* NJOYITC1_00180264, at NJOYITC1_00180271.

A POSITA would also have been motivated to combine Xia '610 with Wang '554 and/or Fang '044 and/or Smoke Fifty-One Duo because they all use a similar device and structure to achieve the desired goals. *See, e.g.,* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 5-13. For example, each is directed to the design and operation of handheld, cylindrical, cigarette-like, electronic cigarettes that use a heating coil within the device, powered by a battery, to vaporize liquid held within the device, for delivery via airflow to a user's mouth via suction from the user, through a mouthpiece at the end of the device.

Additionally, each of Xia '610, Wang '554, Fang '044, and Smoke Fifty-One Duo (and the '881 patent) use very similar cylindrical, cigarette-like structures and internal components to achieve very similar functions. *See, e.g.,* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 5-13. Each also makes use of generally known components, which a POSITA would understand could be obtained off the shelf and used in other devices without the need for experimentation. For example, none of Xia '610, Wang '554, Fang '044, or Smoke Fifty-One Duo describes any of their components as specifically designed or uniquely applicable to a particular e-cigarette design. Additionally, a combination of these references would merely result in the substitution of known elements from one reference for elements in another.

Xia '610, Wang '554, and Fang '044 were also all published within the same eleven-month period and from Chinese inventors. *See, e.g.,* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 5-13. A POSITA would therefore have had a higher chance of locating all three references, and would have been motivated to use them together because they represented relatively new disclosures at the time. For example, a POSITA may be generally more motivated to make use of

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either new designs because of their novelty, or very well known designs because more used designs are likely to be more reliable, rather than designs that are of a different age.

For example, as discussed below with respect to specific limitations, combinations of Xia '610 with Wang '554 and Fang '044 and Smoke Fifty-One Duo merely require known and predictable substitutions of elements to render the Challenged Claims obvious. *See, e.g.,* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 5-13. Because the references are very similar and relate to a predictable subject matter, there would be a high likelihood of success when modifying one reference with the teachings of another. For example, altering the physical arrangement of the known components of the device in Xia '610, such as a heater or a battery, with similar components such as those in Wang '554 and Fang '044 and Smoke Fifty-One Duo, would not result in unpredictable results.

NJOY asserts that for each of these references, "each device has substantially different mechanisms for transporting and vaporizing liquid." CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 280. For example, NJOY asserts that "Fang '044 uses an intermediate wick (temporary oil storage device 15) that draws liquid from the primary storage (oil storage device 14) directly to the heating element (heating film wire 16)." *Id.* NJOY then attempts to contrast Wang '554, which it asserts "wraps a saturated fiber around the heater and has no need of an intermediate wick." *Id.* NJOY does not explain why this renders the devices, let alone the references, incompatible. Mr. Leinsing will opine that a POSITA would not have viewed this as a reason to not combine the references, but rather merely as two different approaches that could be used. For example, there are benefits to not using a wick surrounded by a heater (easier component assembly), and there are benefits to using one (better control over the fluid transport to the heater). The design that a POSITA would choose could depend on design choices. For example, starting

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with Fang ’044 and modifying in view of Wang ’554, a POSITA may keep Fang ’044’s wick-surrounded-by-heater configuration, whereas starting with Wang ’554 and modifying in view of Fang ’044, a POSITA may keep Wang ’554’s configuration. Moreover, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. A POSITA would understand in view of Wang ’554 and Fang ’044 that there are multiple ways to transport and vaporize liquid, and their combined teachings would have suggested both approaches.

NJOY asserts that “Wang ’554 further provides a gap between the liquid storage and the housing to provide an area for the vaporized liquid to accumulate and mix,” but does not explain why this renders the devices, let alone the references, incompatible. CX-2110 (Complainant’s First Sup. Validity Contentions (03/12/2024)) at 280. Mr. Leinsing will opine that Wang ’554 discloses or at least renders obvious its organic fiber, which holds the solution, extending the full length of the interior of the housing—extending from the first aperture to the second aperture. Therefore, this does not serve as a reason to not combine other aspects of Wang ’554 with the other identified references, or vice-versa.

NJOY asserts that “Xia ’610 uses the adult consumer’s own inhalation to pull liquid from the secondary liquid storage chamber into its channel for vaporization,” but does not explain this assertion, or explain why this renders the devices, let alone the references, incompatible. CX-2110 (Complainant’s First Sup. Validity Contentions (03/12/2024)) at 280-281. For example, Xia ’610 states:

> under the action of suction by the smoker, airflow enters the inside of the generator from the air inlets 702 on a side surface of the generator, under the action of the airflow, the vibrating diaphragm 7 vibrates, the electret microphone 4 also vibrates accordingly, after vibration is converted into a switching signal through a controller

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> IC1 (see Fig. 6) on the integrated circuit board, the heater 9 starts working, the chemical liquid is instantly vaporized in an atomizing working room of the heater 9, and the vaporized chemical liquid is sucked out by the smoker from the soft suction nozzle 13.

JX-0596 (Xia '610) at JX-0596.10. This does not say anything about sucking liquid into the airflow passageway. In fact, it states the opposite – liquid is instantly vaporized before being sucked out by a user. Additionally, Xia '610 explains that "the heater 9 is wrapped with the liquid-guiding mechanism 11," demonstrating that the solution goes directly from the liquid guiding mechanism to the heater, not to the user. To the extent that there is any liquid that risks being inhaled by the user, Xia '610 includes "a liquid blocking sealing cover 17 [] arranged on an outer end face of the soft suction nozzle 13," such that "[t]he liquid blocking tank 15 and the liquid blocking sealing cover 17 are used to prevent the chemical liquid from being sucked into the mouth." JX-0596 (Xia '610) at JX-0596.11. This demonstrates that Xia '610 has additional other safeguards in place, other than the "circuitous airflow pathway" that NJOY asserts is responsible for this function.

NJOY asserts that "potential modifications of the solution storage in Fang '044 in view of those disclosed by Xia '610, Wang '554 [and others] would not be a simple design choice but likely require an alteration of the entire air intake system," but does not explain this assertion, or explain why this renders the devices, let alone the references, incompatible. CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 281. For example, Wang '554 already includes a solution storage with an air intake system similar to that of Fang '044, and Xia '610 already uses an absorptive material to hold the solution, which would still retain its solution retention properties, regardless of a through-hole airflow pathway therein.

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2. Wang '927 in view of Wang '554 and NPRO Style

The evidence will show that a POSITA would have been motivated to combine the Wang '927 with Wang '554 and/or NPRO Style as each of the prior art references and device is directed to the same endeavor: reducing the negative effects of smoking. *See, e.g.,* JX-0634 (Leinsing Opening Rpt., Appx. B) at ¶¶ 4-8. For example, Wang '554 states that in common cigarettes, "tobacco is directly ignited by an open flame, smoke and soot are produced at the same time, the tobacco burning process cannot be freely controlled, and smokers affect others and endanger themselves. Especially in public places, smoking is uncivilized and has potential fire hazards, and the global call for smoking bans is getting stronger and stronger." RX-0005 (Wang '554) at RX-0005.4. Wang asserts that "[a] novel electronic pure cigarette is created, thereby improving the physical and mental health of wide smokers and meeting the requirements of modern civilization." RX-0005 (Wang '554) at RX-0005.2. NJOY's NPRO Style is also intended to remove tar and reduce the odor of smoking. *See e.g.,* RX-0080 (Photos of NPRO Style) at RX-0080.4.

A POSITA would also have been motivated to combine Wang '927 with Wang '554 and/or NPRO Style because they all use similar devices and structures to achieve the desired goals. *See, e.g.,* JX-0634 (Leinsing Opening Rpt., Appx. B) at ¶¶ 4-8. For example, each is directed to the design and operation of handheld, cylindrical, cigarette-like, electronic cigarettes that use a heating coil or wire within the devices, powered by a battery, to vaporize e-liquid held within the device, for delivery via airflow to a user's mouth via suction from the user, through a mouthpiece at the end of the device. Each device also has a central and axial airflow passageway to allow airflow to pass through from an opening on one end to an opening on the opposite end. RX-0005 (Wang '554); RX-0080 (Photos of NPRO Style); RPX-0008 (Physical sample of NPRO Style); JX-0405 (CT Scans of NPRO Style); RX-0094 (Raw CT Scan of NPRO Style).

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Additionally, each of Wang '554 and NPRO Style (and the Asserted Patents) use very similar cylindrical, cigarette-like structures and internal components to achieve very similar functions. *See, e.g., id.*; JX-0634 (Leinsing Opening Rpt., Appx. B) at ¶¶ 4-8. Each also makes use of generally known components, which a POSITA would understand could be obtained off the shelf and used in other devices without the need for experimentation. *Id.* For example, neither of Wang '554 or NPRO Style describes any of their components as specifically designed or uniquely applicable to a particular e-cigarette design. *Id.* Additionally, a combination of these references and device would merely result in the substitution of known elements from Wang '554 and NPRO Style for elements in Wang '927. *Id.*

Wang '554 and NPRO Style were also patented or offered for sale within the same six-month period –Wang '554 was granted on February 18, 2009, and NPRO Style was offered for sale no later than August 28, 2008. *Id.* A POSITA would therefore have had a higher chance of locating all three references and device, and would have been motivated to use them together because they represented relatively new disclosures at the time. For example, a POSITA may be generally more motivated to make use of either new designs because of their novelty, or very well-known designs because more used designs are likely to be more reliable, rather than designs that are of a different age. *Id.*

For example, as discussed below with respect to specific limitations, combinations of Wang '927 with Wang '554 and/or NPRO Style merely require known and predictable substitutions of elements to render the Asserted Claims obvious. *Id.* Because the references and device are very similar and relate to a predictable subject matter, there would be a high likelihood of success when modifying one reference with the teachings of another. *Id.* For example, altering the physical arrangement of the known components of the device in Wang '927, such as threaded conductors,

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with similar components such as those in Wang ’554 and NPRO Style would not result in unpredictable results. *Id.*

3. Han ’364 in view of Fang ’044 and NPRO Style

The evidence will show that a person of ordinary skill in the art would have been motivated to combine Han ’364 with Fang ’044, Smoke Fifty-One Duo, Red Dragon, and NJOY NPRO Style, individually and collectively. *See, e.g.*, JX-0635 (Leinsing Opening Rpt., Appx. C) at ¶¶ 5-7. All of the aforementioned references and/or products disclose similar devices and structures to achieve their desired goals. For example, each of Han ’364, Fang ’044, , Smoke Fifty-One Duo, Red Dragon, and NJOY NPRO Style are all directed to the design and operation of handheld, cylindrical, cigarette-like, cartridge-based electronic cigarettes that use a heating coil within the device, powered by a battery, to output heat to vaporize liquid held within the device, for delivery via airflow to a user’s mouth via suction from the user. *See* JX-0632C (Leinsing Opening Rpt.) at§§ X.A.3 (Overview of Fang ’044); X.B.1 (Overview of Smoke Fifty-One Duo); X.B.2 (Overview of Red Dragon); X.B.7 (Overview of NJOY NPRO Style). Additionally, each of Han ’364, Fang ’044, Smoke Fifty-One Duo, Red Dragon, and NJOY NPRO Style makes use of generally known components, which a person of ordinary skill in the art would understand could be obtained off the shelf and used in other devices without the need for experimentation. For example, none of Han ’364 Fang ’044, Smoke Fifty-One Duo, Red Dragon, or NJOY NPRO Style describes any of their components as specifically designed or uniquely applicable to a particular e-cigarette design. Additionally, a combination of these references would merely result in the substitution of known elements from one reference for elements in another.

Further, each of Han ’364 Fang ’044, Smoke Fifty-One Duo, Red Dragon, and NJOY NPRO Style were first sold and/or published within the same 2008-2010 timeframe; a person of ordinary skill in the art would have been able to consult all of the aforementioned references and/or

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products at the same time, and would have been motivated to do so and to use each of the aforementioned references and/or products, as they each would have been relatively new disclosures at the time. *See, e.g.*, JX-0635 (Leinsing Opening Rpt., Appx. C) at ¶¶ 5-7. A person of ordinary skill in the art would be generally more motivated to make use of any of these designs because of their contemporaneous usage at the time when Han '364 was published and because they each would have been known and well-tested configurations.

As discussed below with respect to specific limitations, combinations of Han '364 Fang '044, Smoke Fifty-One Duo, Red Dragon, and NJOY NPRO Style merely require known and predictable substitutions of elements to render the Asserted Claims obvious. *See, e.g.,* JX-0635 (Leinsing Opening Rpt., Appx. C) at ¶¶ 5-7. Because the references are very similar and relate to a predictable subject matter, there would be a high likelihood of success when modifying one reference with the teachings of another. For example, altering the physical arrangement of the known components of the device in Han '364, such as a heating element or an airflow passageway, with similar components such as those in Fang '044, Smoke Fifty-One Duo, Red Dragon, and NJOY NPRO Style, would not result in unpredictable results.

4. Red Dragon in view of Fang '044 and Wang '927

The evidence will show that a POSITA would have been motivated to combine the Red Dragon with Fang '044 and/or Wang '927 because they all use similar devices and structures to achieve the desired goals. *See, e.g.,* JX-0638 (Leinsing Opening Rpt., Appx. E) at ¶¶ 6-9. For example, each is directed to the design and operation of handheld, cylindrical, cigarette-like, electronic cigarettes that use a heating coil or wire within the devices, powered by a battery, to vaporize e-liquid held within the device, for delivery via airflow to a user's mouth via suction from the user, through a mouthpiece at the end of the device. *See* JX-0632C (Leinsing Opening Rpt.) at §§ X.A.3 (Overview of Fang '044) and X.A.2 (Overview of Wang '927). Each device also has a

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central and axial airflow passageway to allow airflow to pass through from an opening on one end to an opening on the opposite end. *Id*.

Additionally, each of Fang '044 and Wang '927 (and the Asserted Patents) use very similar cylindrical, cigarette-like structures and internal components to achieve very similar functions. *See, e.g.,* JX-0638 (Leinsing Opening Rpt., Appx. E) at ¶¶ 6-9. Each also makes use of generally known components, which a POSITA would understand could be obtained off the shelf and used in other devices without the need for experimentation. For example, neither Fang '044 nor Wang '927 describes any of their components as specifically designed or uniquely applicable to a particular e-cigarette design. Additionally, a combination of these references and device would merely result in the substitution of known elements from Fang '044 and Wang '927 for elements in the Red Dragon.

Fang '044 and Wang '927 were also all patented or offered for sale within the same six-month period – Fang '044 was granted on July 16, 2008 and Wang '927 was granted on February 13, 2008. *See, e.g.,* JX-0638 (Leinsing Opening Rpt., Appx. E) at ¶¶ 6-9. A POSITA would therefore have had a higher chance of locating all three references and device, and would have been motivated to use them together because they represented relatively new disclosures at the time. For example, a POSITA may be generally more motivated to make use of either new designs because of their novelty, or very well-known designs because more used designs are likely to be more reliable, rather than designs that are of a different age.

For example, as discussed below with respect to specific limitations, combinations of Red Dragon with Fang '044 and/or Wang '927 merely require known and predictable substitutions of elements to render the Asserted Claims obvious. *See, e.g.,* JX-0638 (Leinsing Opening Rpt., Appx. E) at ¶¶ 6-9. Because the references and device are very similar and relate to a predictable subject

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matter, there would be a high likelihood of success when modifying one reference with the teachings of another. For example, altering the physical arrangement of the known components of the device in the Red Dragon, such as a heating coil, support tubes, or threaded conductors, with similar components such as those in Fang '044 and Wang '927 would not result in unpredictable results.

5. Smoke Fifty-One Duo in view of Fang '044 and Wang '927

The evidence will show that a POSITA would have been motivated to combine the Smoke Fifty-One Duo with Fang '044 and/or Wang '927 because they all use similar devices and structures to achieve the desired goals. *See, e.g.,* JX-0636C (Leinsing Opening Rpt., Appx. D) at ¶¶ 5-8. For example, each is directed to the design and operation of handheld, cylindrical, cigarette-like, electronic cigarettes that use a heating coil or wire within the devices, powered by a battery, to output heat to vaporize e-liquid held within the device, for delivery via airflow to a user's mouth via suction from the user, through a mouthpiece at the end of the device. *See* JX-0632C (Leinsing Opening Rpt.) at §§ X.A.3 (Overview of Fang '044); X.A.2 (Overview of Wang '927). Each device also has a central and axial airflow passageway to allow airflow to pass through from an opening on one end to an opening on the opposite end. *Id*.

Additionally, each of Fang '044 and Wang '927 (and the Asserted Patents) use very similar cylindrical, cigarette-like structures and internal components to achieve very similar functions. *See, e.g.,* JX-0636C (Leinsing Opening Rpt., Appx. D) at ¶¶ 5-8. Each also makes use of generally known components, which a POSITA would understand could be obtained off the shelf and used in other devices without the need for experimentation. For example, none of Fang '044 and Wang '927 describes any of their components as specifically designed or uniquely applicable to a particular e-cigarette design. Additionally, a combination of these references and device would

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merely result in the substitution of known elements from Fang ’044 and Wang ’927 for elements in the Smoke Fifty-One Duo.

Fang ’044 and Wang ’927 were also all patented or offered for sale within the same six-month period – Fang ’044 was granted on July 16, 2008, and Wang ’927 was granted on February 13, 2008. *See, e.g.,* JX-0636C (Leinsing Opening Rpt., Appx. D) at ¶¶ 5-8. A POSITA would therefore have had a higher chance of locating all three references and device, and would have been motivated to use them together because they represented relatively new disclosures at the time. For example, a POSITA may be generally more motivated to make use of either new designs because of their novelty, or very well-known designs because more used designs are likely to be more reliable, rather than designs that are of a different age.

For example, as discussed below with respect to specific limitations, combinations of Smoke Fifty-One Duo with Fang ’044 and/or Wang ’927 merely require known and predictable substitutions of elements to render the Asserted Claims obvious. *See, e.g.,* JX-0636C (Leinsing Opening Rpt., Appx. D) at ¶¶ 5-8. Because the references and device are very similar and relate to a predictable subject matter, there would be a high likelihood of success when modifying one reference with the teachings of another. For example, altering the physical arrangement of the known components of the device in the Smoke Fifty-One Duo, such as a heating coil or threaded conductors, with similar components such as those in Fang ’044 and/or Wang ’927 would not result in unpredictable results.

6. NJOY NPRO and NCIG in view of Wang ’554, Fang ’044, and Wang ’927

The evidence will show that a POSITA would have been motivated to combine each of the NJOY NPRO and NCIG with Fang ’044, Wang ’927, and/or Wang ‘554 as each of the prior art references and device is directed to the same endeavor: providing an alternative to smoking. *See,*

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e.g., JX-0640C (Leinsing Opening Rpt., Appx. G) at ¶¶ 5-10. For example, NPRO and NCIG are electronic cigarettes that are alternatives to traditional cigarettes. *See supra* Sections IV.G.1.viii and IV.G.1.V.ix. Fang '044 notes the dangers of smoking: "Smoking is a serious threat to human health. There are many smokers in China. In order to make smokers quit smoking, there are many methods to quit smoking." JX-0595 (Fang '044) at JX-0595.1267. Fang '044 asserts that "the utility model designs an electronic cigarette which is low in manufacturing cost and convenient to use, and produces the same effect as tobacco smoking." JX-0595 (Fang '044) at JX-0595.1267. Similarly, Wang '927 discloses that "[i]t is common knowledge that smoking harms health and pollutes the environment. But some people have developed hobbies for smoking and are not easy to quit." JX-0594 (Wang '927) at JX-0594.3. Wang '927 asserts that "[t]he utility model provides an electronic liquid cigarette, which uses liquid extracted from tobacco as a raw material and is simple in structure, easy to manufacture and low in cost, and traditional burning cigarettes are transformed into non-burning liquid cigarettes. It overcomes many shortcomings of original electronic cigarettes, especially its single function; purified nicotine is used as a raw material, while nicotine is a highly toxic drug that is strictly restricted in use by national laws; and electronic generators have the disadvantages of being complex in structure, high in cost and not easy to popularize and use widely." *Id*. Wang '554 states that "[a] novel electronic pure cigarette is created, thereby improving the physical and mental health of wide smokers and meeting the requirements of modern civilization." RX-0005 (Wang '554) at RX-0005.1-2

A POSITA would also have been motivated to combine each of the NJOY NPRO and NCIG with Fang '044, Wang '927, and/or Wang '554 because they all use similar devices and structures to achieve the desired goals. *See, e.g.,* JX-0640C (Leinsing Opening Rpt., Appx. G) at ¶¶ 5-10; RX-0005 (Wang '554); JX-0595 (Fang '044); JX-0594 (Wang '927). For example, each is directed

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to the design and operation of handheld, cylindrical, cigarette-like, electronic cigarettes that use a heating coil or wire within the devices, powered by a battery, to vaporize e-liquid held within the device, for delivery via airflow to a user's mouth via suction from the user, through a mouthpiece at the end of the device. *See* JX-0632C (Leinsing Opening Rpt.) at ¶¶ 266-356; RX-0005 (Wang '554); JX-0595 (Fang '044); JX-0594 (Wang '927); Sections IV.G.1.ii, iii, iv *supra* (Xia '610, Wang '554, Fang '044, Wang '927). Each reference also has an airflow passageway to allow airflow to pass through from an opening at one end to an opening at the opposite end. *Id*.

Additionally, each of Fang '044, Wang '927, and Wang '554 (and the Asserted Patents) use very similar cylindrical, cigarette-like structures and internal components to achieve very similar functions. *Id.* Each also makes use of generally known components, which a POSITA would understand could be obtained off the shelf and used in other devices without the need for experimentation. *Id.* For example, none of Fang '044, Wang '927, or Wang '554 describes any of their components as specifically designed or uniquely applicable to a particular e-cigarette design. *Id.* Additionally, a combination of these references and device would merely result in the substitution of known elements from Fang '044, Wang '927, and Wang '554 for elements in each of the NJOY NPRO and NCIG. *Id.*

Fang '044, Wang '927, and Wang '554 were also all patented or published within the same one-year period – Fang '044 was granted on July 16, 2008, Wang '927 was granted on February 13, 2008, and Wang '554 was published on February 18, 2009. *See, e.g.,* JX-0640C (Leinsing Opening Rpt., Appx. G) at ¶¶ 5-10; RX-0005 (Wang '554); JX-0595 (Fang '044); JX-0594 (Wang '927). A POSITA would therefore have had a higher chance of locating all three references and device, and would have been motivated to use them together because they represented relatively new disclosures at the time. *Id.* For example, a POSITA may be generally more motivated to make

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use of either new designs because of their novelty, or very well-known designs because more used designs are likely to be more reliable, rather than designs that are of a different age. *Id.*

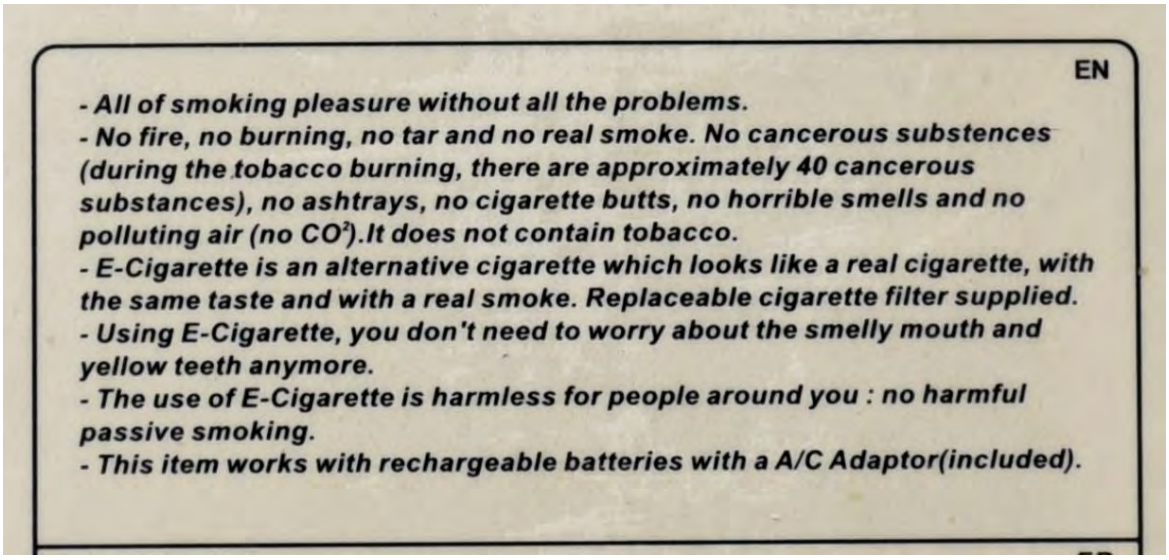
For example, as discussed below with respect to specific limitations, combinations of each of the NJOY NPRO and NCIG with Fang '044, Wang '927, and/or Wang '554 merely require known and predictable substitutions of elements to render the Asserted Claims obvious. *See, e.g.,* JX-0640C (Leinsing Opening Rpt., Appx. G) at ¶¶ 5-10; RX-0005 (Wang '554); JX-0595 (Fang '044); JX-0594 (Wang '927). Because the references and device are very similar and relate to a predictable subject matter, there would be a high likelihood of success when modifying one reference with the teachings of another. *Id.* For example, altering the physical arrangement of the known components of the device in each of the NJOY NPRO and NCIG, such as a heating coil, support tubes, or threaded conductors, with similar components such as those in Fang '044, Wang '927, and Wang '554 would not result in unpredictable results. *Id.*

7. Cigarette Electronique

The evidence will show that a POSITA would have been motivated to combine the Cigarette Electronique device with Wang '554 and/or Fang '044, as they are each directed to the same endeavor: reducing the negative effects of smoking. *See, e.g.,* JX-0639C (Leinsing Opening Rpt., Appx. F) at ¶¶ 6-10. For example, the Cigarette Electronique device advertises that it has "no fire, no burning, no tar and no real smoke. No cancerous subst[a]nces… and no polluting air" and "you don't need to worry about the smelly mouth and yellow teeth" and it is "harmless for people around you":

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- All of smoking pleasure without all the problems.
- No fire, no burning, no tar and no real smoke. No cancerous substences (during the tobacco burning, there are approximately 40 cancerous substances), no ashtrays, no cigarette butts, no horrible smells and no polluting air (no CO^2).It does not contain tobacco.
- E-Cigarette is an alternative cigarette which looks like a real cigarette, with the same taste and with a real smoke. Replaceable cigarette filter supplied.
- Using E-Cigarette, you don't need to worry about the smelly mouth and yellow teeth anymore.
- The use of E-Cigarette is harmless for people around you : no harmful passive smoking.
- This item works with rechargeable batteries with a A/C Adaptor(included).

See RX-0072 at RX-0072.11.

Similarly, Wang ’554 states that in common cigarettes, “tobacco is directly ignited by an open flame, smoke and soot are produced at the same time, the tobacco burning process cannot be freely controlled, and smokers affect others and endanger themselves. Especially in public places, smoking is uncivilized and has potential fire hazards, and the global call for smoking bans is getting stronger and stronger.” RX-0005 (Wang ‘554) at RX-0005.4. Wang asserts that “[a] novel electronic pure cigarette is created, thereby improving the physical and mental health of wide smokers and meeting the requirements of modern civilization.” RX-0005 (Wang ‘554) at RX-0005.2. Fang ’044 also notes the dangers of smoking: “Smoking is a serious threat to human health. There are many smokers in China. In order to make smokers quit smoking, there are many methods to quit smoking.” JX-0595 (Fang ‘044) at JX-0595.4. Fang ’044 asserts that “the utility model designs an electronic cigarette which is low in manufacturing cost and convenient to use, and produces the same effect as tobacco smoking.” JX-0595 (Fang ‘044) at JX-0595.4.

A POSITA would also have been motivated to combine the Cigarette Electronique device with Wang ’554 and/or Fang ’044 because they are all use a similar device and structure to achieve

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the desired goals. *See, e.g.,* JX-0639C (Leinsing Opening Rpt., Appx. F) at ¶¶ 6-10. For example, each is directed to the design and operation of handheld, cylindrical, cigarette-like, electronic cigarettes that use a heating element within the device, powered by a battery, to output heat for vaporizing liquid held within the device, for delivery via airflow to a user's mouth via suction from the user, through a mouthpiece at the end of the device.

Additionally, each of the Cigarette Electronique device and Wang '554, and Fang '044 (and the '881 and '864 Patents) use very similar cylindrical, cigarette-like structures and internal components to achieve very similar functions. *See, e.g.,* JX-0639C (Leinsing Opening Rpt., Appx. F) at ¶¶ 6-10. Each also makes use of generally known components, which a POSITA would understand could be obtained off the shelf and used in other devices without the need for experimentation. For example, none of the Cigarette Electronique device or Wang '554 or Fang '044 describes any of their components as specifically designed or uniquely applicable to a particular e-cigarette design. Additionally, a combination of these references would merely result in the substitution of known elements from Wang '554 and/or Fang '044 for elements in the Cigarette Electronique device.

For example, as discussed below with respect to specific limitations, combinations of the Cigarette Electronique device with Wang '554 and/or Fang '044 merely require known and predictable substitutions of elements to render the asserted claims obvious. *See, e.g.,* JX-0639C (Leinsing Opening Rpt., Appx. F) at ¶¶ 6-10. Because the references are very similar and relate to a predictable subject matter, there would be a high likelihood of success when modifying one reference with the teachings of another. For example, altering the physical arrangement of the known components of the device in the Cigarette Electronique device, such as a heater or a battery,

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with similar components such as those in Wang '554 and/or Fang '044, would not result in unpredictable results.

b. '864 Patent, claim 1[pre]: "[a] cartridge configured to couple to a power source of an electronic vaporizer, the cartridge comprising"

The parties have not alleged that the preamble is limiting.

1. Xia '610 in view of Wang '554 and Fang '044 and Smoke Fifty-One Duo – '864 Patent, Claim 1[pre]

The evidence will show that Xia '610 discloses or renders obvious, alone or in combination with Wang '554 and Fang '044 and Smoke Fifty-One Duo this limitation. *See, e.g.,* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 579-582; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 221-265; JX-0596 (Xia '610); JX-0595 (Fang '044); RX-0130C (Declaration of Yardimici). NJOY and its expert do not dispute that this limitation is met by Xia '610. *See, e.g.,* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 793-805; CX-2726C (Vallee Reb. Rpt.) at Appx. A-1, ¶ 235.

For example, the evidence will show that Xia '610 discloses an "environmental-protecting type incombustible atomizing electronic cigarette with a function of a cigarette substitute." JX-0596 (Xia '610) at JX-0596.12 (claim 1); *see also* JX-0596 (Xia '610) at JX-0596.6; JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶580. Xia '610 further discloses that "the objective of the utility model is to provide an environmental-protecting type incombustible atomizing electronic cigarette with a function of a cigarette substitute, which has similar shape with the cigarette, is small, easy to carry, simple in structure and low in cost, meets the using habits of smokers, does not have noxious substances of tar and carbon monoxide, and the like, reduces the cancerogenic risk, and does not have fire hazard; in addition, the aspirated smoke does not cause environmental pollution." JX-0596 (Xia '610) at JX-0596.7; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶580. Xia '610 illustrates an example design, using cross-sectional images, for example in

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figures 1 and 2, which demonstrate that Xia ’610 discloses a cylindrical electronic cigarette. JX-0596 (Xia ‘610) at FIGs. 1, 2; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶582.

The evidence will also show that Xia ’610 discloses a design for an e-cigarette that includes two main sections: “a detachable controller and a generator.” JX-0596 (Xia ‘610) at JX-0596.3; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶223. Xia ’610 discloses that the “controller” includes “a rechargeable lithium battery (2).” JX-0596 (Xia ‘610) at JX-0596.3 (claim 1); *see also* JX-0632C (Leinsing Opening Rpt.) at ¶223.

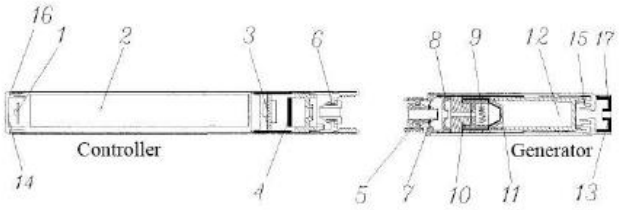


Fig. 2

See JX-0596 (Xia ‘610) at FIG. 2.

Xia ’610’s “controller” section serves as a detachable power source, containing a battery, that powers the “generator” portion’s heating element. JX-0596 (Xia ‘610) at JX-0596.16; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 223. Xia ’610 discloses a “generator” portion, which serves as a cartridge. JX-0632C (Leinsing Opening Rpt.) at ¶ 226. For example, Xia ’610 discloses a design for an e-cigarette that includes two main sections: “a detachable controller and a generator.” JX-0596 (Xia ‘610) at JX-0596.3 (claim 1); *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 226. Xia ’610 explains that the “generator” portion is where the vapor is generated: “after the controller and the generator are connected through the connecting conductors A, B, the environmental-protecting type incombustible atomizing electronic cigarette is formed; when the smoker sucks, the airflow enters the generator through the air inlet on a side of the connecting

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conductor A, passes through the vibrating diaphragm, the liquid-blocking plate and the heater, and is finally sucked out through the suction nozzle." JX-0596 (Xia '610) at JX-0596.16; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 226. Xia '610 illustrates an example cartridge on the right part of figure 2. JX-0596 (Xia '610) at Fig. 2.

The evidence will also show that X"a '6'0 In combination with Wang '554 and/or Fang '044 and/or Smoke Fifty-One Duo renders obvious this limitation. For example, as discussed above, the evidence will show that a POSITA would have been motivated to combine these references, and as discussed below, each of these references discloses this limitation.

2. Wang '554 in view of Xia '610 and Fang '044 and Smoke Fifty-One Duo and Smoke Fifty-One Duo – '864 Patent, Claim 1[pre]

The evidence will show that Wang '554 discloses or renders obvious, alone or in combination with Xia '610 and Fang '044 this limitation. *See* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 583-585; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 267-295; RX-0005 (Wang '554); JX-0596 (Xia '610); JX-0595 (Fang '044); RX-0130C (Declaration of Yardimici). NJOY and its expert do not dispute that this limitation is met by Wang '554. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 757-770; CX-2726C (Vallee Reb. Rpt.) at Appx. A-2, ¶ 143.

For example, the evidence will show that Wang '554 discloses "An electronic pure cigarette, comprising a cigarette holder part and a cigarette rod part, characterized in that the cigarette rod part consists of a cigarette rod shell, a battery, a sensor, an indicating lamp, a circuit control board, an indicating lamp cover, an air inlet, an air outlet, an output end, and the like, and the cigarette holder part consists of a cigarette holder shell, an electric heater, a tobacco extract, an organic fiber, an air inlet, an air outlet, an input end, and the like." RX-0005 (Wang '554) at RX-0005.3; *see also* RX-0005 (Wang '554) at FIGs 2, 3; JX-0633C (Leinsing Opening Rpt., Appx. A)

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at ¶ 585. The evidence will show that Wang '554's "cigarette rod part" is the claimed power source, and the "cigarette holder part" is the claimed cartridge. *See* JX-0632C (Leinsing Opening Rpt.) at ¶¶ 268-271. For example, the evidence will show that the cigarette holder part consists of "a cigarette holder shell, an electric heater, a tobacco extract, an organic fiber, an air inlet, an air outlet, an input end, and the like" and "is a disposable product, and is used after being connected to a cigarette rod through the input end" where the holder's structure has in it "an adsorption material of the tobacco extract." RX-0005 (Wang '554) at RX-0005.4; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 267-271.

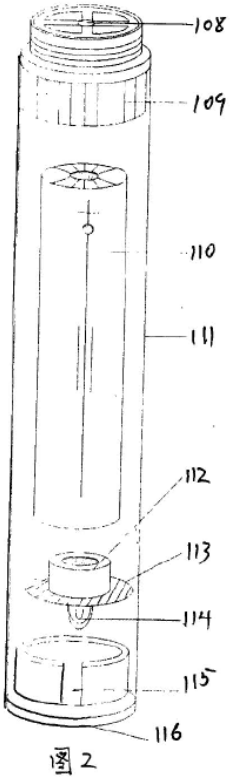


图 2

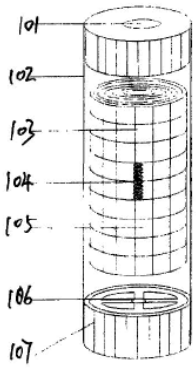


图 3

See RX-0005 (Wang '554) at FIGs 2, 3.

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The evidence will also show that Wang '554 in combination with Xia '610 renders obvious this limitation. For example, as discussed above, the evidence will show that a POSITA would have been motivated to combine Xia '610 with Wang '554, and as discussed above, Xia '610 discloses this limitation.

The evidence will also show that Wang '554 in combination with Fang '044 renders obvious this limitation. For example, as discussed above, the evidence will show that a POSITA would have been motivated to combine Fang '044 with Wang '554, and as discussed below, Fang '044 discloses this limitation.

3. Fang '044 in view of Xia '610 and Wang '554 and Smoke Fifty-One Duo – '864 Patent, Claim 1[pre]

The evidence will show that Fang '044 renders obvious, alone or in combination with Xia '610 and Wang '554 and Smoke Fifty-One Duo this limitation. *See* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 586-587; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 297-309; JX-0595 (Fang '044); JX-0596 (Xia '610); RX-0005 (Wang '554); RX-0130C (Declaration of Yardimici).

For example, the evidence will show that Fang '044 discloses the use of two main body sections: sucker 1 and rod shell 2, which are separate but connected pieces: "the sucker (1) is connected with the cigarette rod shell (2)." JX-0595 (Fang '044) at JX-0595.3; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 300. Fang also explains: "an electronic cigarette comprises: a sucker 1, a cigarette rod shell 2, … [and] the sucker 1 is connected with the cigarette rod shell 2." JX-0595 (Fang '044) at JX-0595.5; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 300. Fang '044 illustrates the sucker 1 and rod shell 2 as different pieces because it uses different shading for them in figure 1 for example. Thus, Fang '044 itself discloses the use of a separable e-cigarette, and as the evidence will show, it would have been obvious to move the separation to another natural location in Fang '044's design.

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[redacted]

For example, the evidence will further show that a POSITA would have been motivated to modify the device to have a cartridge configuration. For example, the evidence will show there were benefits to doing so, and as discussed above in Section IV.E.3.xii.a, there was a motivation to combine Fang '044 with other references that did, such as Xia '610, Wang '554, and Smoke Fifty-One Duo. For example, Fang '044 renders obvious the use of a traditional cartridge design because it discloses that the device is made of separate pieces, and it discloses the use of two separate functional areas: (1) a top portion (as oriented in figure 1) that can be described as a 'cartridge', with components for storing and vaporizing nicotine oil and; (2) a power source, with a battery, in mechanical and electrical contact with the cartridge portion that contains the pressure switch, circuit board, and light similar to other analogous prior art. *See* JX-0632C (Leinsing Opening Rpt.) at ¶ 300.

For example, as illustrated in Figure 1 of Fang '044, the housing extends inwardly in an area between the heating chamber and the pressure sensor and circuit. The evidence will show that a POSITA would understand that this is a typical location for separating a single-piece design into a cartridge design, for example because the heater and the liquid storage are more consumable (and therefore better suited to being located in a cartridge that can be disposable) than the pressure sensor, circuit, and battery which are likely more expensive components and do not degrade as much with use. *See* JX-0632C (Leinsing Opening Rpt.) at ¶ 302. For example, with repeated use of the device there may be residue buildup on or near the heating coil. Additionally, if the device is used without sufficient liquid, the heater may burn out. Thus, it makes sense for the heating coil to be replaced periodically. Similarly, the liquid is consumed with use, and it is easier and more straightforward for a user to replace a cartridge containing liquid than it is to try to open a device and fill free liquid into an existing absorbent material for example. Thus, it makes sense to replace

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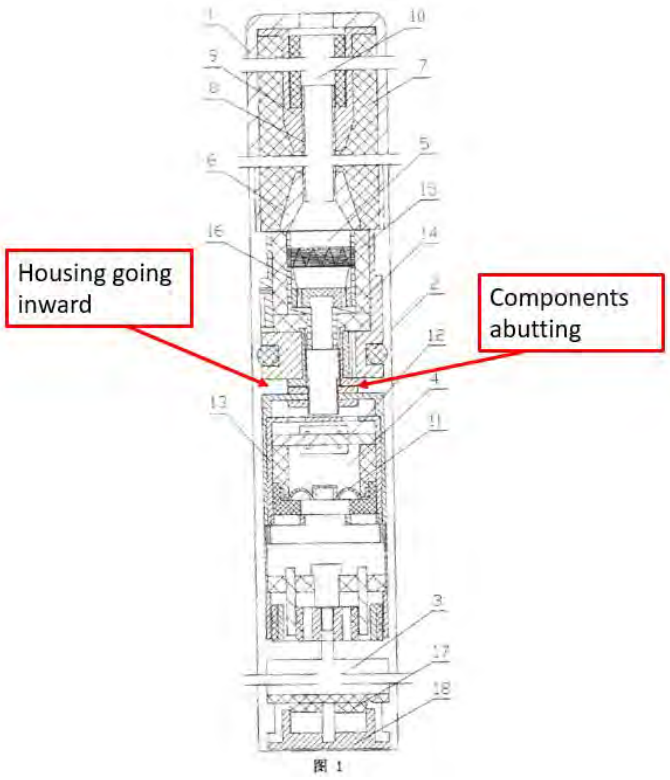
the liquid storage periodically with pre-filled absorbent material. By contrast, the pressure sensor and circuit are less likely to degrade or be used up with use, and are more sensitive electronics than the heater for example, and therefore relatively more expensive. Thus, it makes sense to include these in a reusable portion, to save the consumer from having to repurchase the expensive components unnecessarily. Additionally, a rechargeable battery can be used in a reusable portion, which can be more convenient for users and result in less monetary and material waste than having disposable batteries.

The evidence will further show that Fang '044 presents a very natural location for a split in its design to introduce a cartridge configuration, and a POSITA would have had a reasonable expectation of success in splitting it. *See* JX-0632C (Leinsing Opening Rpt.) at ¶ 303. For example, all this would require would be the separation of the housing at a location that is already functionally separated. In fact, Fang '044 illustrates the components in this region as abutting each other, illustrating a split even in the internal components as well. Introducing a split would therefore not require the re-configuration of any internal components, and would only require the addition of some structure to secure the two pieces together that was well known in the art, such as threading.

In making this split, it would be obvious to include electrodes on both the cartridge portion and the power portion so that the electricity from the battery could be conducted to the heating coil. In fact, this appears to be what Fang '044 already illustrates in showing the abutting components in this region in Figure 1 for example:

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[redacted]



See JX-0632C (Leinsing Opening Rpt.) at ¶ 304.

In illustrating the sensor and circuit portion of the device in Figure 3 for example, Fang '044 includes the lower abutting components from this region, but not the upper abutting components, further confirming for a POSITA that these parts could be separated. *See* JX-0595 (Fang '044) at FIG. 3; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 586-587.

Additionally, Wang '554 and Xia '610 each disclose separable electronic cigarettes, including cartridge portions separable from power portions, and a POSITA combining either or both of those references with Fang '044 would have included that functionality. JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 71.

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4. Wang ’927 in view of Wang ’554 and NPRO Style – ’864 Patent, Claim 1[pre]

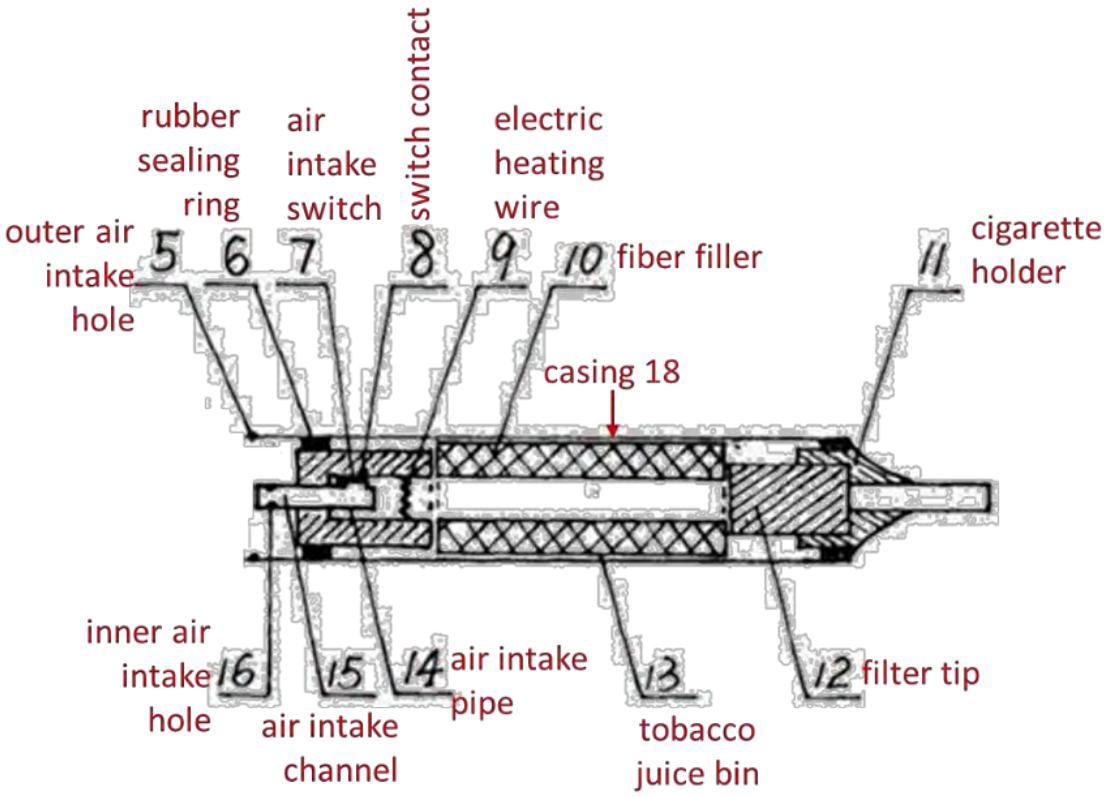
The evidence will show that Wang ’927 discloses or renders obvious, alone or in combination with Wang ’554 and NPRO Style this limitation. *See* JX-0634 (Leinsing Opening Rpt., Appx. B) at ¶¶ 237-240; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 323-356; JX-0594 (Wang ’927); RX-0005 (Wang ’554); RX-0080 (Photos of NPRO Style); RPX-0008 (Physical sample of NPRO Style); JX-0405 (CT Scans of NPRO Style); RX-0094 (Raw CT Scan of NPRO Style).

The evidence will show for example, that Wang ’927 discloses an electronic cigarette (“e-cigarette”) that includes a front end and a tail end. *See e.g.,* JX-0594 (Wang ’927) at Fig. 1, JX-0594.0003-5; *see also* JX-0634 (Leinsing Opening Rpt., Appx. B) at ¶ 238. The cartridge of Wang ’927, including the “tail end” of the casing 18 and the cigarette holder 11, is configured to couple to the “front end” of the casing 18 (i.e., the power source).

Specifically, the e-cigarette disclosed in Wang ’927 includes the casing 18, where the tail end of the casing 18 houses, among other components, outer air intake hole 5, rubber sealing ring 6, air intake switch 7, switch contact 8, electric heating wire 9, fiber filler 10, filter tip 12, tobacco juice bin 13, air intake pipe 14, air intake channel 15, and inner air intake hole 16. JX-0594 (Wang ’927) at Fig. 1, JX-0594.1-2, 4; *see also* JX-0634 (Leinsing Opening Rpt., Appx. B) at ¶ 239. The right end of the casing 18 is connected to the cigarette holder 11. *Id*. Vaporized tobacco juice is provided to the user through the casing 18 and the cigarette holder 11.

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See JX-0594 (Wang '927) at Fig. 1 (cropped to only show the tail end) (annotated in red); *see also* JX-0634 (Leinsing Opening Rpt., Appx. B) at ¶ 239.

Further, Wang '927 also discloses a 2-piece device with the "tail end" being separable from the "front end." JX-0594 (Wang '927) at Fig. 1, JX-0594.3-5. However, to the extent it is determined that Wang '927 does not disclose a 2-piece design where the "front end" is detachable from the "tail end," Mr. Leinsing will opine that it would be beneficial and a POSITA would be motivated to modify the e-cigarette disclosed in Wang '927 and separate the e-cigarette into two pieces – the "front end" piece and the "tail end" piece. *See id.;* JX-0632C (Leinsing Opening Rpt.) at ¶ 329. For example, the evidence will show there were benefits to doing so, and as discussed above in Section IV.G.1.xiii.a.2, there was a motivation to combine Wang '927 with other references that did, such as Wang '554, and NPRO Style. For example, the heating component in

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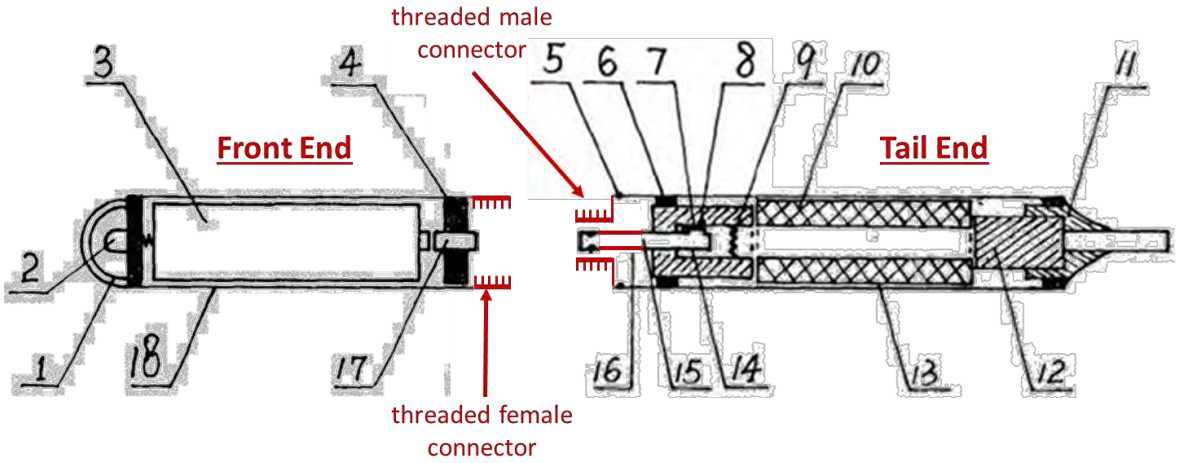
e-cigarettes gets burned out and/or starts to take on a charred flavor over time and needs to be replaced for a better taste. Users would also want to change the cartridge so that they can try different flavors. *See* JX-0632C (Leinsing Opening Rpt.) at ¶ 329; JX-0594 (Wang '927) at Fig. 1, JX-0594.3-5. When the e-cigarette is one-piece (i.e., the power source portion is not separate from the atomizer and cartridge portion), a user would need to pay for the cost of the battery portion (that can include light, electronics, and pressure switch) as well every time the user needs to replace the atomizer or cartridge. *Id.* It would be beneficial and a POSITA would be motivated to include a pressure switch in the battery portion so that a user would not short the circuit in the battery portion by accident. *Id.* A pressure switch in the battery portion would make sure that the battery would not power the electrical contacts without the cartomizer attached. *Id.* It would also be beneficial and a POSITA would be motivated to separate the power source portion from the atomizer and cartridge portion because it would reduce cost for users and lock in customers to repeated purchases of cartridges from the same manufacturer compared to the added cost to users of buying new power source portions. *Id.* With a separable power source portion, a user can replace just the batteries or recharge them (separating the components exposes electrical contacts to charge the battery) to enable finishing one or more cartridges. *Id.* In addition, Wang '927 discloses two outer air intake holes as shown in Fig. 1, which indicates that the e-cigarette can be separated because otherwise, one would only put one air intake hole on the casing, instead of two. *Id.* Further, Wang '927 contemplates the power source portion could be separate from the atomizer and the cartridge because the internal components of the e-cigarette are all separated, air intake channel is arranged for electrical contact that is releasably coupled (there would otherwise be wires or only one piece for electrode and air intake pipe), no need for power supply bracket, and there is a clear place to divide the casing 18 into two pieces, the power source portion (i.e., the "front end")

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and the atomizer and cartridge portion (i.e., the "tail end"). *Id*. at Fig. 1 and JX-0594.4-5; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 329.

Mr. Leinsing will opine that a POSITA would also be motivated to use threaded connections to connect the power source portion and the atomizer and cartridge portion because thread connections are very strong and secure mechanically and electrically. *See* JX-0632C (Leinsing Opening Rpt.) at ¶ 330; JX-0594 (Wang '927) at Fig. 1, JX-0594.3-5. One can throw the e-cigarette with threaded connections around and it will be unlikely to come apart. In addition, the threaded connections when made with conductive material, which was well known in the art, also establish reliable electrical coupling. *Id*. This is even more important for long slender e-cigarettes that are split around the middle. *Id*. Moreover, the threaded connections also facilitate a good seal where one wants it and can prevent any leakage of e-liquid. *Id*. Further, a POSITA would also be motivated to use a conductive material for the threaded connections so that one terminal of the battery is connected to the atomizer through the metal pins in the center, the other terminal can be connected to the atomizer through the threaded connections to complete the electric circuit. *Id*.



See JX-0594 (Wang '927) at Fig. 1 (annotated in red, with modifications); *see also* JX-0634 (Leinsing Opening Rpt., Appx. B) at ¶ 330.

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Further, it was well known in the art to have the power source portion separable from the rest of the e-cigarette and use threaded connections made of conductive material to connect the power source portion and the atomizer and cartridge portion. *See* JX-0632C (Leinsing Opening Rpt.) at ¶ 331; JX-0596 (Xia '610). For example, as discussed above, Xia '610 disclosed a "controller" portion (i.e., the power source portion) separate from the "generator" portion (i.e., the atomizer and cartridge portion) and the two portions being connected together using "the connecting conductor B6 and the connecting conductor A5 in threaded connection or clamping groove connection." JX-0596 (Xia '610); Section IV.G.1.ii *supra*. As another example, as discussed, Wang '554 disclosed a "cigarette rod" portion (i.e., the power source portion) separate from the "cigarette holder" portion (i.e., the atomizer and cartridge portion) and conductive threaded connections are used to connect the cigarette rod and the cigarette holder. RX-0005 (Wang '554); Section IV.G.1.iii *supra*. Prior art systems such as the Red Dragon, Smoke 51 Duo, the Cigarette Electronique E-Cig, and the NPRO Style all use threaded conductors to connect the battery with the cartridge. *See e.g.,* Sections IV.G.1.vii, x, xi, xii.

Additionally, Mr. Leinsing will opine that a POSITA would also be motivated to look to prior art references and systems, such as Wang '554 or the NPRO Style, to separate the front end of the e-cigarette disclosed in Wang '927 from the tail end and use conductive threaded connections to connect the tail end to the front end. *See* JX-0632C (Leinsing Opening Rpt.) at ¶ 332; RX-0005 (Wang '554); RX-0080 (Photos of NPRO Style); RPX-0008 (Physical sample of NPRO Style); JX-0405 (CT Scans of NPRO Style); RX-0094 (Raw CT Scan of NPRO Style). For example, Wang '554 and NPRO Style each discloses using threaded connections to connect the battery portion and the cartridge. *Id.* The threaded connections are made of a conductive material so that when the two

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portions are connected, current can flow from the battery in the power source portion to the heating coil in the cartridge via the threaded connections. *Id.*

NJOY asserts that JLI's "the proposed two-piece design would be more expensive, as it would have required adult consumers to replace the cartridge piece every time the nicotine liquid was depleted" and "could suffer from imperfect heating or smoke delivery if the adult consumer did not tighten the two pieces just right." CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 320. However, NJOY's assertion ignored that Wang '927 already illustrates the device as a 2-piece design as discussed above. JX-0594 (Wang '927) at Fig. 1, JX-0594.3-5. JLI's modification keeps the detachable cigarette holder. *Id.;* JX-0632C (Leinsing Opening Rpt.) at ¶ 333. A user would still be able to add liquid tobacco juice to the fiber filler by removing the cigarette holder. *Id.* Additionally, the two-piece design allows users to only purchase cartridges when they want to switch flavors, instead of purchasing the whole device (including the battery and cartridge). *Id.* Further, an adult user would know how to screw threaded connections together. *Id.* In the rare event where an adult user does not screen the threaded connections properly, it is extremely easy for the adult use to tighten the screw or simply re-screw the connections. *Id.*

NJOY asserts that JLI's modification to move the pressure switch to the battery portion "would result in a more complex and therefore more expensive design of the battery compartment. Additionally, the proposed modification would carry a risk of ionization of the incoming air by the battery, resulting in potential unexpected harm to the adult consumer's health." CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 320; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 334. However, NJOY's assertion ignores the teaching of Wang '927 which already discloses the use of a pressure switch. JX-0594 (Wang '927) at Fig. 1, JX-0594.3-5. By moving the pressure switch to the battery portion would not increase cost, but instead results in a

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more affordable and safer design that is easier to manufacture. *Id.* Further, NJOY's assertion on the risk of ionization of the incoming air by the battery is simply not true for many reasons. *Id.* First, the air going through battery portion can be isolated from electrical contacts or parts of the battery and would not be exposed to the battery itself or to anymore electrical fields in battery portion than cartridge portion. *Id.* Second, the airflow can be isolated to only the end where you attach the cartridge. *Id.* [redacted]

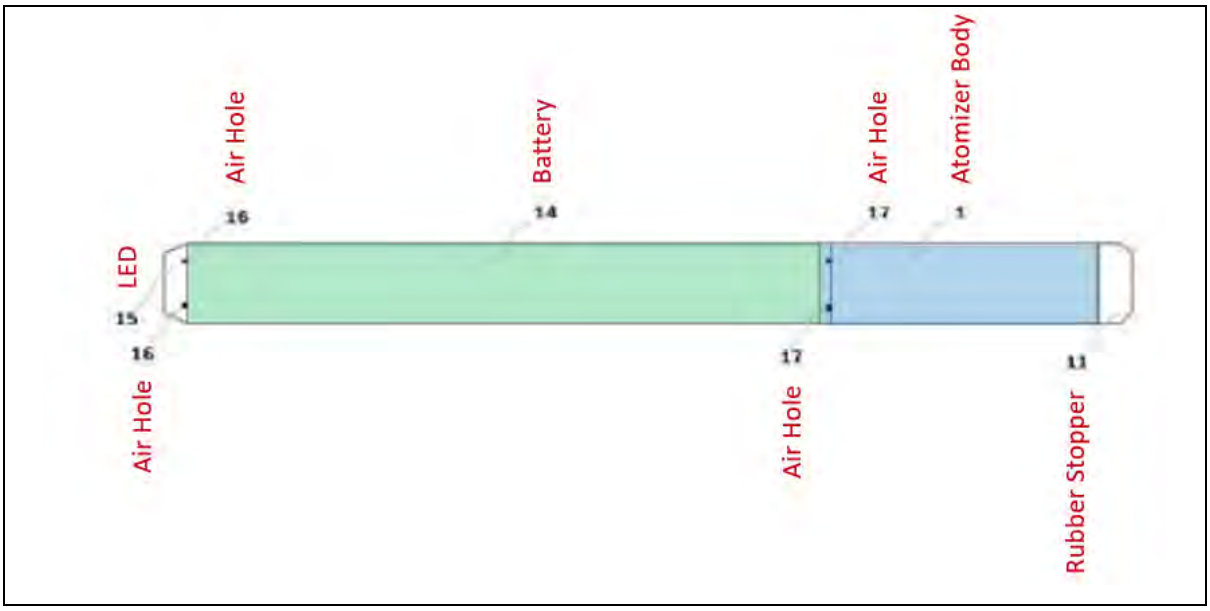
5. Han '364 in view of Fang '044 and NPRO Style – '864 Patent, Claim 1[pre]

The evidence will show that Han '364 in view of Fang '044 and NPRO Style discloses or renders obvious this limitation. *See* JX-0635 (Leinsing Opening Rpt., Appx. C) at ¶¶ 243-244; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 357-403; JX-0631 (Han '364 certified English Translation) ; JX-0595 (Fang '044); RX-0080 (Photos of NPRO Style); RPX-0008 (NJOY NPRO Style Kit).

For example, the evidence will show that Han '364 discloses an e-cigarette device. *See, e.g.,* JX-0631 (Han '364 certified English Translation) at Summary; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 358-360. For example, Han '364 discloses a battery component 14 and an integrated atomizer body 1 (the latter also known as a cartridge or cartomizer). *See also* JX-0631 (Han '364 certified English Translation) at FIG. 5 (annotated):

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The integrated atomizer body 1 has "a cylindrical shape and an air pressure transmitting part (4) that are largely combined into a single part with a screw part (2) made of electrically conductive brass (as known as Shinju)," as well as "a filament (6) that generates heat and fire-resistant fiber (5) surrounding it" and "a rubber stopper (11)." *See id.*, at [0013]. "[T]he wires (7, 8) connected to both sides of the filament (6) are electrically connected to the atomizer body (1) and the air pressure transmitting part (4) … In other words, both sides of the wire … are connected to the positive pole of the DC battery." *See id.* at [0017].

A user holds rubber stopper 11 to their mouth; when the user draws air, air can enter air holes 16 and/or 17, mix with an electronic cigarette solution vapor, and exit the device out of the rubber stopper 11. *See id.*, at [0013]. For example, "when you place your mouth on the rubber stopper (11) and suck in air…, …the suction sensor inside the battery part operates to supply power from the battery." *See id*. Further, "as the filament (6) of the atomizer is heated, the liquid contained in the fire-resistant fiber (5) is vaporized, and smoke containing nicotine is inhaled, creating an

effect similar to smoking a tobacco cigarette." *See id.* The user thereby receives the vapor from the end placed to their mouth. *See id.*

The e-cigarette includes a battery part 14 and an integrated-type atomizer that includes both the atomizer and a capsule including nicotine liquid. *See, e.g.,* JX-0631 (Han '364 certified English Translation), at [0013]; *see also id.* at FIG. 5. "[B]attery part (14) … includes the battery and suction sensor (Diagram 5)." *Id.*, at [0013]; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶¶ 361-364. The cartridge mechanically and electrically couples to the battery part 14 so as to power a filament 66 in the cartridge. *See, e.g.,* JX-0631 (Han '364 certified English Translation) at FIG. 5; [0013], [0017]; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶¶ 358-364.

6. Red Dragon in view of Fang '044 and Wang '927 – '864 Patent, Claim 1[pre]

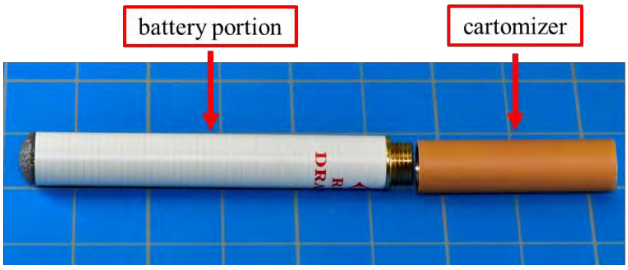
The evidence will show that Red Dragon in view of Fang '044 and Wang '927 discloses or renders obvious this limitation. *See* JX-0638 (Leinsing Opening Rpt., Appx. E) at ¶¶ 239-242; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 461-505; RX-0074 (Photos of Red Dragon Kit # 1); RX-0076 (Photos of Red Dragon Kit # 2); RX-1309 (Red Dragon Product 3 Piece Kit (Evans 2)); RX-0077 (CT scans of Red Dragon Kit #2); RX-0098 ([vg-project] Red Dragon - Cartridge_Pen Package.zip (Native)); RX-0099 ([vg-project] Red Dragon - Pen.zip (Native)); RPX-0009 (Red Dragon 3-Piece Kit); RPX-0010 (Red Dragon 3-Piece Kit (Sealed); JX-0595 (Fang '044); JX-0594 (Wang '927). NJOY and its expert do not dispute that the Red Dragon discloses or renders obvious this claim limitation. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 916-937; CX-2726C (Vallee Reb. Rpt.) at Appx. E, ¶ 114.

For example, the Red Dragon is a two-piece electronic cigarette that includes (1) a battery section and (2) a cartomizer that are connected together (*i.e.,* by screwing them together). *See, e.g.,* RX-0074 (Photos of Red Dragon Kit #1) at RX-0074.43, 45, 81 (cropped); *see also* JX-0638C

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(Leinsing Opening Rpt., Appx. E) at ¶¶ 239-242. The cartomizer includes an electrically conductive threaded conductor to couple to the electrically conductive threaded conductor of the battery section. *Id.*



See RX-0074 (Photos of Red Dragon Kit #1) at RX-0074.43 (annotated in red); *see also* JX-0638C (Leinsing Invalidity Rpt., Appx. E) at ¶ 240.

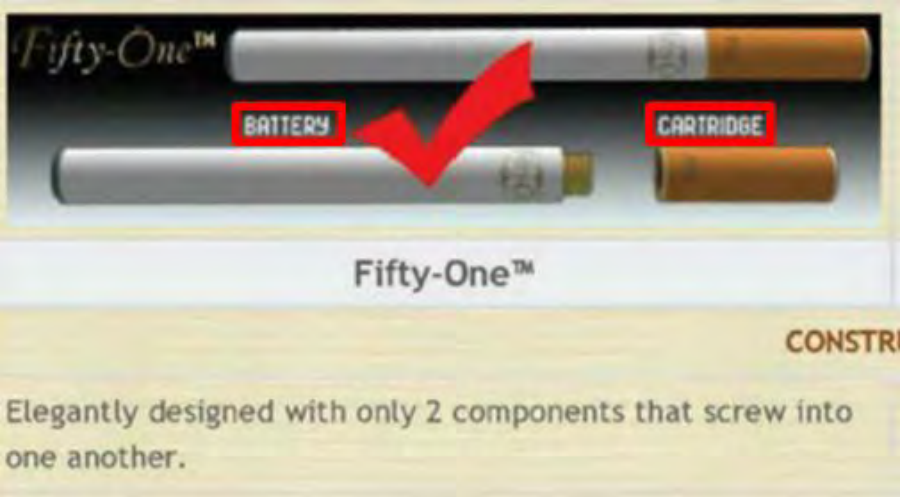
7. Smoke Fifty-One Duo in view of Fang '044 and Wang '927 – '864 Patent, Claim 1[pre]

The evidence will show that Smoke Fifty-One Duo in view of Fang '044 and Wang '927 discloses or renders obvious this limitation. *See* JX-0636C (Leinsing Opening Rpt., Appx. D) at ¶¶ 229-232; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 413-460); RX-0130C (Declaration of Yardimici); JX-0595 (Fang '044); JX-0594 (Wang '927). NJOY and its expert do not dispute that Smoke Fifty-One Duo anticipates this claim limitation. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 897-916; CX-2726C (Vallee Reb. Rpt.) at Appx. D, ¶ 71.

For example, the evidence will show the Smoke Fifty-One Duo includes two sections: (1) a battery section and (2) a cartridge.

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See RX-0151C (Collins Rpt.) at RX-0151C.130 (citing JX-0624 (Compare Fifty-One to Other Electronic Cigarettes) at JX-0624.2 (annotated in red)); *see also* JX-0636C (Leinsing Opening Rpt., Appx. D) at ¶¶ 230.

8. NJOY NPRO in view of Wang '554, Fang '044, and Wang '927 – '864 Patent, Claim 1[pre]

The evidence will show that NJOY NPRO in view of Wang '554, Fang '044, and Wang '927 discloses or renders obvious this limitation. *See* JX-0640C (Leinsing Opening Rpt., Appx. G) at ¶¶ 236-237; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 548-612; RX-0082 (Photos of NJOY NPRO); JX-0404 (CT Scans of NJOY NPRO); RPX-0007 (NJOY NPRO Sample); RX-0095 (CT Scan Raw Data of NJOY NPRO); RX-0005 (Wang '554); JX-0595 (Fang '044). NJOY and its expert do not dispute that the NJOY NPRO discloses or renders obvious this claim limitation. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 963-980; CX-2726C (Vallee Reb. Rpt.) at Appx. G, ¶ 208.

For example, the NJOY NPRO discloses an e-cigarette (i.e., an electronic vaporizer) including (1) a cartridge and (2) a power source. *See, e.g.,* RX-0082 (Photos of NJOY NPRO) at RX-0082.59; JX-0482C at JX-0482C.4; *see also* JX-0640C (Leinsing Opening Rpt., Appx. G) at

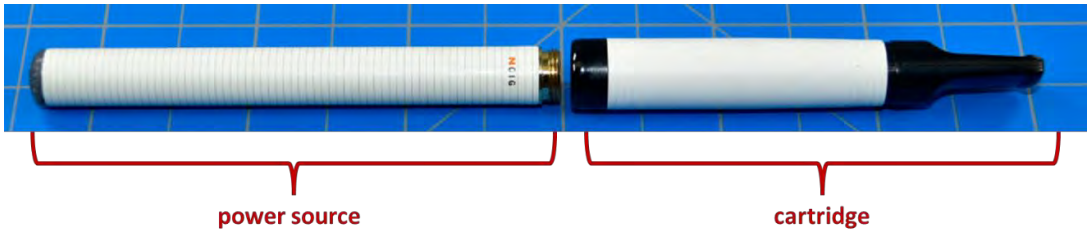
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¶¶ 236-237. The cartridge is configured to couple to the power source via threaded connections. *Id.*

9. NJOY NCIG in view of Wang '554, Fang '044, and Wang '927 – '864 Patent, Claim 1[pre]

For the same reasons why NJOY NPRO in view of Wang '554, Fang '044, and Wang '927 discloses or renders obvious this limitation, the NJOY NCIG in view of Wang '554, Fang '044, and Wang '927 also discloses or renders obvious this limitation. *See* JX-0632C (Leinsing Invalidity Rpt.) at ¶¶ 584-612; JX-0640C (Leinsing Invalidity Rpt., Appx. G) at ¶¶ 236-237; RPX-0006 (NJOY NCIG Sample); RX-0084 (Photos of NJOY NCIG); JX-0402 (CT Scans of NJOY NCIG); RX-0090 (CT scan of NCIG); RX-0109C (NJOY NCIG User Guide); JX-0482C (NJOY Welcomes to the Tobacco Plus Expo 2009), JX-0482C.3.



See RX-0084 (Photos of NJOY NCIG) at RX-0084.51 (annotated in red).

10. Cigarette Electronique – '864 Patent, Claim 1[pre]

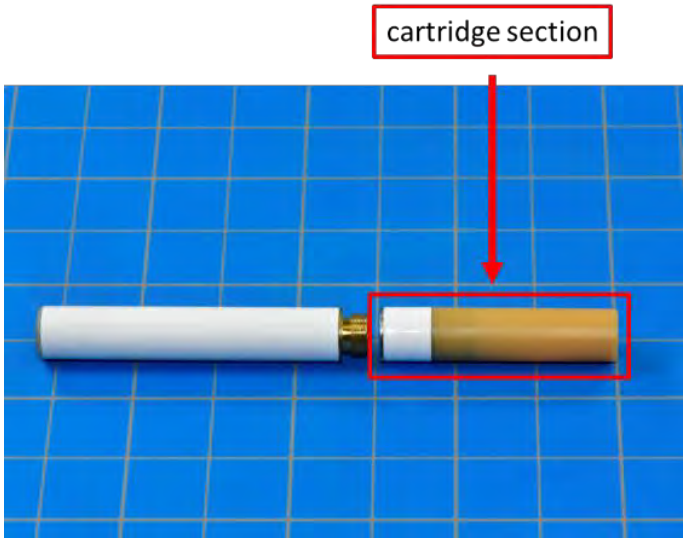
The evidence will show that Cigarette Electronique discloses or renders obvious this limitation. *See* JX-0639C (Leinsing Opening Rpt., Appx. F) at ¶¶ 269-275; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 506-547; RX-0072 (Photos of Cigarette Electronique); RPX-0011 (Cigarette Electronique Kit). NJOY and its expert do not dispute that this limitation is met by the Cigarette Electronique. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 937-963; CX-2726C (Vallee Reb. Rpt.) at Appx. F, ¶ 167.

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[redacted]

For example, the evidence will show the Cigarette Electronique is a two-piece electronic cigarette that includes (1) a power source section and (2) a cartridge section that are connected together (*i.e.,* by screwing them together). *See, e.g.,* RX-0072 at RX-0072.30;RX-0072 at RX-0072.16; *see also* JX-0639C (Leinsing Opening Rpt., Appx. F) at ¶¶ 269-275. The power source section of the Cigarette Electronique device includes a threaded male connector to be screwed into the threaded female conductor of the cartridge section.

The Cigarette Electronique device is a cig-a-like device, which includes a battery portion and a cartridge section:



See RX-0072 at RX-0072.30 (annotated in red); JX-0632C (Leinsing Opening Rpt.) at ¶ 517.

11. Fuma Prototype – '864 Patent, Claim 1[pre]

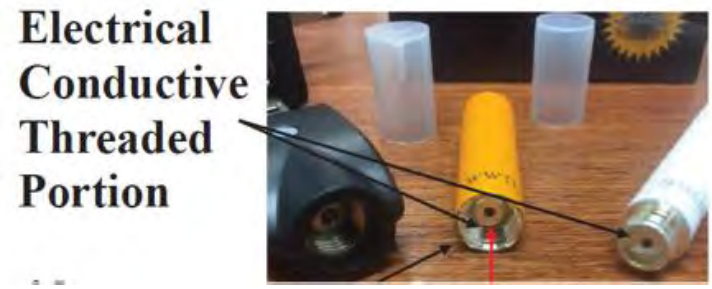
The Evidence will show that the Fuma Prototype discloses this limitation. *See, e.g.,* Leinsing Opening Rpt., Appx. H) at ¶¶ 212-214; NJOY's 13th Supp. ROG Responses; RX-0078 (Photos of Fuma Starter Kit); RX-0079 (CT scans of Fuma Starter Kit).

The Fuma Prototype includes the Fuma Battery and the Fuma Cartridge. When the Fuma Cartridge is screwed onto the Fuma Battery, the electrically conductive threaded portion of the

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Fuma Battery will be electrically and mechanically coupled to the electrically conductive threaded portion of the Fuma Cartridge to allow current to pass through.



See '864 Priority Chart at 1 (citing CRTP Exhibit A at Fig. 2).

The inventor of the Asserted Patents further admitted that the Fuma Prototype discloses claim element 1. *See* Conley '864 Declaration at ¶5 (Independent claim 41).

NJOY also admitted that the Fuma Prototype discloses claim element 1. *See* '864 Priority Chart at 1-2.

c. '864 Patent, claim 1[a]: "a housing having an interior and a solution holding medium adapted to hold a solution"

The term "solution holding medium adapted to hold a solution" has been construed "to have its plain and ordinary meaning, that is, a location, container, or mechanism to hold the solution." Order No. 36 at 50.

1. Xia '610 in view of Wang '554 and Fang '044 and Smoke Fifty-One Duo– '864 Patent, Claim 1[a]

The evidence will show that Xia '610 discloses or renders obvious, alone or in combination with Wang '554 and Fang '044 and Smoke Fifty-One Duo this limitation. *See, e.g.,* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 588-599; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 221-265; JX-0596 (Xia '610); JX-0595 (Fang '044); RX-0130C (Declaration of Yardimici). NJOY and its expert do not dispute that this limitation is met by Xia '610. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 793-805; CX-2726C (Vallee Reb. Rpt.) at Appx. A-1,

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[redacted]

¶ 235. Complainant's expert Dr. Vallee confirmed that Xia '610 discloses the "generator" portion comprises a solution holding medium within the exterior housing. *See, e.g.,* RX-1015C (Vallee 4/12/24 Tr.) at 381:15-20; 382:2-4.

The evidence will show that Xia '610's disclosed "generator" is a cartridge where the vapor is produced. JX-0596 (Xia '610) at JX-0596.10; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶588-599. For example, the evidence will show that Xia '610 discloses that the "generator" portion has a housing having multiple components within its interior: "a hollow connecting conductor A (5), a vibrating diaphragm (7), a liquid-blocking plate (8), a secondary liquid storage chamber (10), a heater (9), a liquid-guiding mechanism (11), a liquid storage chamber (12) and a soft suction nozzle (13) are sequentially arranged inside the generator from left to right; and the connecting conductor A (5) is provided with an air inlet (702)." JX-0596 (Xia '610) at JX-0596.3; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶592.

The evidence will show that Xia '610's "generator" portion has a housing as claimed: "stainless steel shells are arranged on an outer surface of the controller and an outer surface of the generator, respectively." JX-0596 (Xia '610) at JX-0596.11; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶594. Moreover, Xia '610's generator includes "a heat insulation layer is further arranged in the stainless steel shell of the generator. The purpose of the heat insulation layer is to avoid potential safety hazards caused by a high temperature of the heater 9." *Id.* Xia '610 illustrates an example cartridge ("generator") in Figure 2. JX-0596 (Xia '610) at Fig. 2; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶594.

The evidence will show that Xia '620 has a solution holding medium adapted to hold a solution interior of the housing as claimed, at least as NJOY interprets the claims and the solution

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holding medium (including that the solution holding medium can have holes in it[25]). For example, Xia ’610 discloses the use of three liquid holding components that work together to hold a solution. For example, storage chamber 12, which has an absorbent material for holding a solution therein, works with liquid-guiding mechanism 11 and secondary liquid storage chamber 10 to hold solution within the generator portion of the device: “The liquid storage chamber 12 is a cylindrical object with one end open, medicinal cotton fibers are placed in the middle, and then the raw chemical liquid is charged in. Through a capillary action of the liquid-guiding mechanism 11, the chemical liquid stored in the liquid storage chamber 12 is guided into the secondary liquid storage chamber 10.” JX-0596 (Xia ‘610) at JX-0596.13; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 596. Xia ’610 also discloses that there is liquid in the liquid storage chamber 12 that is also held (including while being drawn through) in guiding mechanism 11 and secondary chamber 10. Xia ’610 explains the functioning of the solution holding components: “The working process of the utility model is as follows: when in use, chemical liquid flows from the liquid storage chamber 12 into the secondary liquid storage chamber 10 through the liquid-guiding mechanism 11.” JX-0596 (Xia ‘610) at JX-0596.10; *see also* JX-0596 (Xia ‘610) at JX-0596.13; JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶595.

Complainant’s expert Dr. Vallee has testified that Xia’s generator comprises a solution holding medium and an exterior housing, and the solution holding medium is within the exterior housing. *See, e.g.,* RX-1015C (Vallee 4/12/24 Tr.) at 381:15-382:4.

[25] For example, Complainant asserts that the [redacted].

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[redacted]

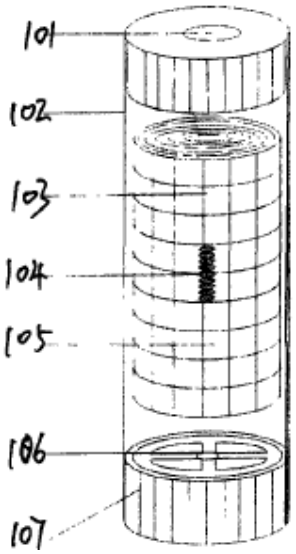
2. Wang ’554 in view of Xia ’610 and Fang ’044 and Smoke Fifty-One Duo – ’864 Patent, Claim 1[a]

The evidence will show that Wang ’554 discloses or renders obvious, alone or in combination with Xia ’610 and Fang ’044 and Smoke Fifty-One Duo this limitation. *See* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 616-621; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 267-295; RX-0005 (Wang ‘554); JX-0596 (Xia ‘610); JX-0595 (Fang ‘044); RX-0130C (Declaration of Yardimici). NJOY and its expert do not dispute that this limitation is met by Wang ’554. *See* CX-2110 (Complainant’s First Sup. Validity Contentions (03/12/2024)) at 757-770; CX-2726C (Vallee Reb. Rpt.) at Appx. A-2, ¶ 143.

For example, Wang ’554 discloses a “cigarette holder part” that has a “holder shell”: “cigarette holder part consists of a cigarette holder shell, an electric heater, a tobacco extract, an organic fiber, an air inlet, an air outlet, an input end, and the like.” RX-0005 (Wang ‘554) at RX-0005.3 (claim 1); *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 617. As shown in Figure 3, “cigarette holder shell 102” and its end caps (including 107) serve as the housing to the cartridge portion. The interior of the housing contains heating coil 104 and solution holding medium 105, for example. RX-0005 (Wang ‘554) at Fig. 3; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 617.

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See RX-0005 (Wang '554) at Fig. 3; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 617.

For example, the evidence will show that Wang '554 states that "cigarette holder shell 102 is a hollow cylinder" that "provides a space for the electric heater 104 and the tobacco extract 103 and organic fiber 105 wound around it," where the "tobacco extract 103…is natural tobacco absolute oil, a certain proportion of nicotine is mixed in after the tobacco extract is diluted with alcohols in a certain proportion, and then a mixture quantitatively soaked in the organic fiber 105. Since the tobacco extract 103 is in a liquid or paste state, when heated, the tobacco extract 103 is first vaporized into smoke." RX-0005 (Wang '554) at RX-0005.7; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 619.

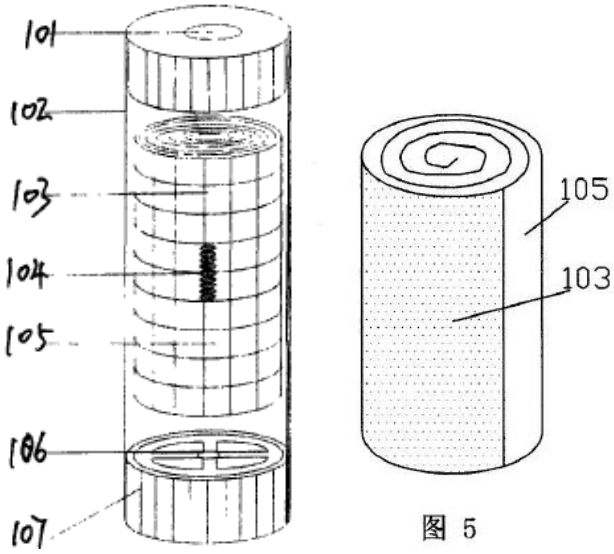
Wang '554 discloses a solution holding medium, at least as NJOY interprets the claims and the solution holding medium (including that the solution holding medium can have holes in it, *see* n. 25, *supra*). For example, the evidence will show that Wang '554 discloses "[t]he cigarette holder part consists of a cigarette holder shell, an electric heater, a tobacco extract, an organic fiber." RX-0005 (Wang '554) at RX-0005.4; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 287. Wang '554

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further discloses, "[i]n a cigarette holder structure, an adsorption material of the tobacco extract is the organic fiber especially a fiber made of a natural tobacco material" where "nicotine is mixed in after the tobacco extract is diluted with alcohols and a mixture is quantitatively soaked into the organic fiber." RX-0005 (Wang '554) at RX-0005.4-5; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 287.

For example, as shown below, Wang '554's cartridge contains a solution holding medium in the form of an absorbent organic fiber 105, which is positioned around that heater 104. RX-0005 (Wang '554) at RX-0005.7-9.



See RX-0005 (Wang '554) at Figs. 3, 5; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 618.

3. Fang '044 in view of Xia '610 and Wang '554 and Smoke Fifty-One Duo – '864 Patent, Claim 1[a]

The evidence will show that Fang '044 discloses or renders obvious, alone or in combination with Xia '610 and Wang '554 and Smoke Fifty-One Duo this limitation. *See* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 632-637; JX-0632C (Leinsing Opening Rpt.) at ¶¶

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296-321; JX-0595 (Fang '044); JX-0596 (Xia '610); RX-0005 (Wang '554); RX-0130C (Declaration of Yardimici).

For example, Fang '044 describes that the device has a housing comprising an interior: it has a "cigarette rod shell (2), and the battery (3), the fuming device control switch (4) and the nicotine oil fuming device (5) are sequentially nested in the cigarette rod shell (2)." JX-0595 (Fang '044) at JX-0595.3; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 633.

For example, as explained above with respect to '864 Patent claim 1[pre], the evidence will show that to the extent Fang '044 does not already disclose a cartridge configuration for the device, a POSITA would have been motivated to modify the device to have a cartridge configuration, in view of Fang '044 alone, in view of Xia '610, and/or in view of Wang '554 for example. *See* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 634. In so doing, the cartridge portion would have part of the disclosed shell 2 where it existed above the break point, and would comprise an interior.

The evidence will also show that Fang discloses a solution holding medium, at least as NJOY interprets the claims and the solution holding medium (including that the solution holding medium can have holes in it, *see* n. 25, *supra*). For example, Fang '044 discloses an oil conservator 7, and oil storage device 14, which together are adapted to hold solution interior of the housing. JX-0595 (Fang '044) at JX-0595.3; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 635. Fang 044 states that "A nicotine oil storage sleeve 7 is nested in the sucker 1," and that the device "includes an oil storage device 14, a temporary oil storage device 15 composed of a set of capillary tubes and an electric heating film wire 16, the oil storage device 14 is in contact with the temporary oil storage device 15 and the oil conservator 7 in the sucker 1, the electric heating film wire 16 is wound on the temporary oil storage device 15." Fang 044 at 1268; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 635*;* JX-0632C (Leinsing Opening Rpt.) at ¶ 316. Fang

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044 explains that "due to the action of the capillary tubes, the temporary oil storage device 15 sucks in nicotine oil stored in the nicotine oil storage device 14." Fang 044 at 1269; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 635. "In order to increase a storage amount of nicotine oil, the oil conservator 7 is nested in the sucker 1, and the oil conservator 7 is in contact with the oil storage device 14 and supplies nicotine oil to the oil storage device 14. The oil conservator 7, the oil storage device 14 and the temporary oil storage device 15 are made of cotton yam or sponge materials that can absorb nicotine oil." *Id.; see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 316. Fang 044 therefore discloses the use of an absorbent material for holding a solution.

4. Wang '927 in view of Wang '554 and NPRO Style – '864 Patent, Claim 1[a]

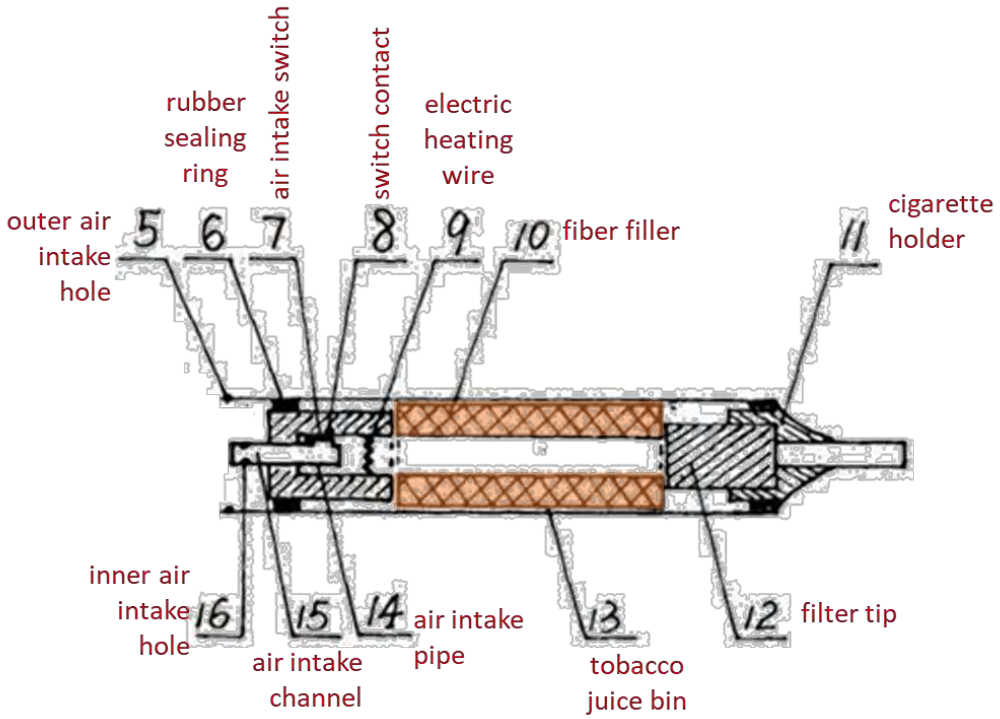
The evidence will show that Wang '927 discloses or renders obvious, alone or in combination with Wang '554 and NPRO Style this limitation. *See* JX-0634 (Leinsing Opening Rpt., Appx. B) at ¶¶ 241-250; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 323-356; JX-0594 (Wang '927); RX-0005 (Wang '554); RX-0080 (Photos of NPRO Style); RPX-0008 (Physical sample of NPRO Style); JX-0405 (CT Scans of NPRO Style); RX-0094 (Raw CT Scan of NPRO Style). NJOY and its expert do not dispute that this limitation is met by Wang '927. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 784-793; CX-2726C (Vallee Reb. Rpt.) at Appx. B, ¶ 192.

Wang '927 discloses a solution holding medium, at least as NJOY interprets the claims and the solution holding medium (including that the solution holding medium can have holes in it, *see* n. 25, *supra*). *Id*. at Fig. 1, JX-0594.1-2, 4; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 354. For example, Wang '927 discloses the "tobacco juice bin compris[ing] a box body" and "fiber filler absorbing liquid cigarettes." *Id*. at JX-0594.3; *see also id.* at JX-0594.4 ("The tobacco juice bin 13 is a plastic round pipe; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 354. Fiber filler 10

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is made into a ring shape and filled into a cigarette box 13. A circular-hole ventilation channel in the middle of the fiber filler 10 is made of a metal net to support fibers without deformation."). The fiber filler is an absorbent material and hold solution.



See JX-0594 (Wang '927) at Fig. 1 (cropped to only show the tail end) (annotated in red and orange); *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 354.

5. Han '364 in view of Fang '044 and NPRO Style – '864 Patent, Claim 1[a]

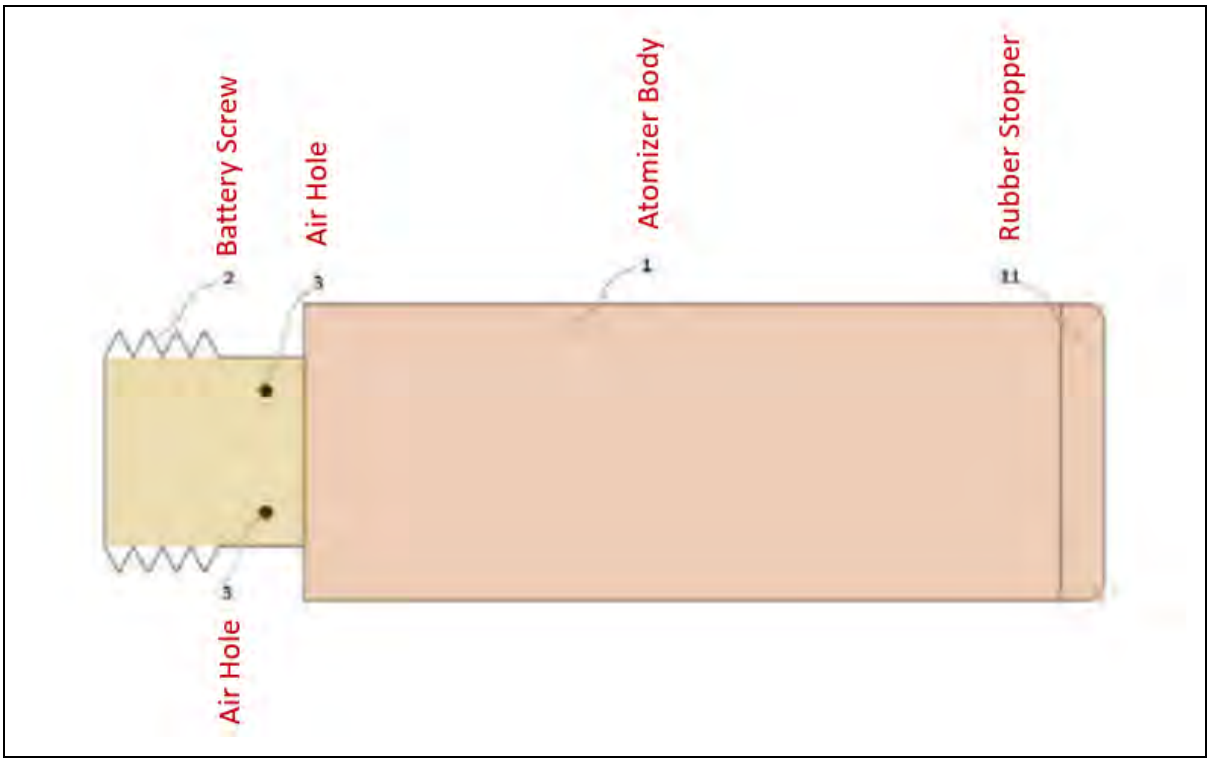
The evidence will show that Han '364 in view of Fang '044 and NPRO Style discloses or renders obvious this limitation. *See* JX-0635 (Leinsing Opening Rpt., Appx. C) at ¶¶ 245-255; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 357-403; JX-0631 (Han '364 certified English Translation) ; JX-0595 (Fang '044); RX-0080 (Photos of NPRO Style); RPX-0008 (NJOY NPRO Style Kit). NJOY and its expert do not dispute that Han '364 discloses or renders obvious this claim limitation.

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See CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 893-897. CX-2726C (Vallee Reb. Rpt.) at Appx. C, ¶ 231.

For example, Han '364 discloses a cartridge component. *See, e.g.,* JX-0631 (Han '364 certified English Translation) at [0014]-[0015]; *see also id.* at FIG. 5; JX-0632C (Leinsing Opening Rpt.) at ¶ 362. The cartridge (i.e., cartomizer) component includes an integrated atomizer body 1 (i.e., a housing), which includes an electrical component 2 that screws into the battery component 14. *See, e.g.,* JX-0631 (Han '364 certified English Translation) at [0013], [0034]; Claim 3. For example, integrated atomizer body 1 has "a cylindrical shape and an air pressure transmitting part (4) that are largely combined into a single part with a screw part (2) made of electrically conductive brass (as known as Shinju)." *See id.*, at [0013]. The cartridge housing also includes "a rubber stopper (11) that can be opened and closed for resupplying nicotine liquid." *See id.*

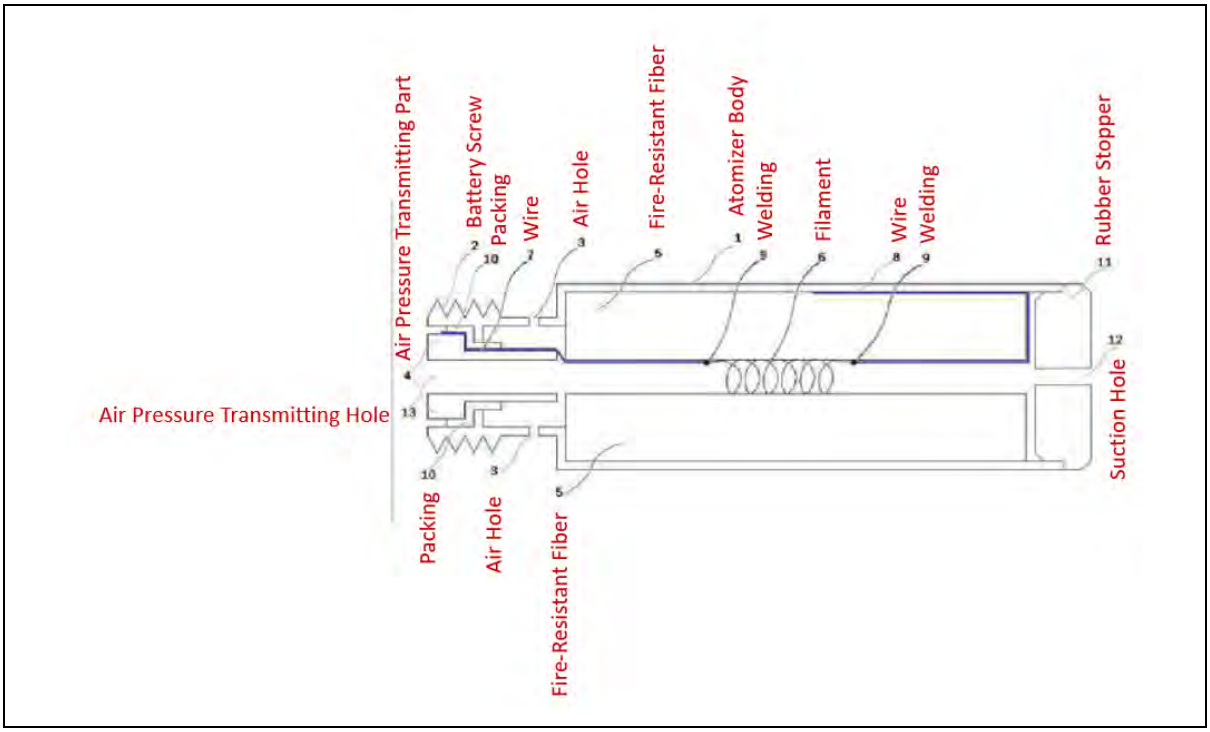


See JX-0632C (Leinsing Opening Rpt.) at ¶ 362.

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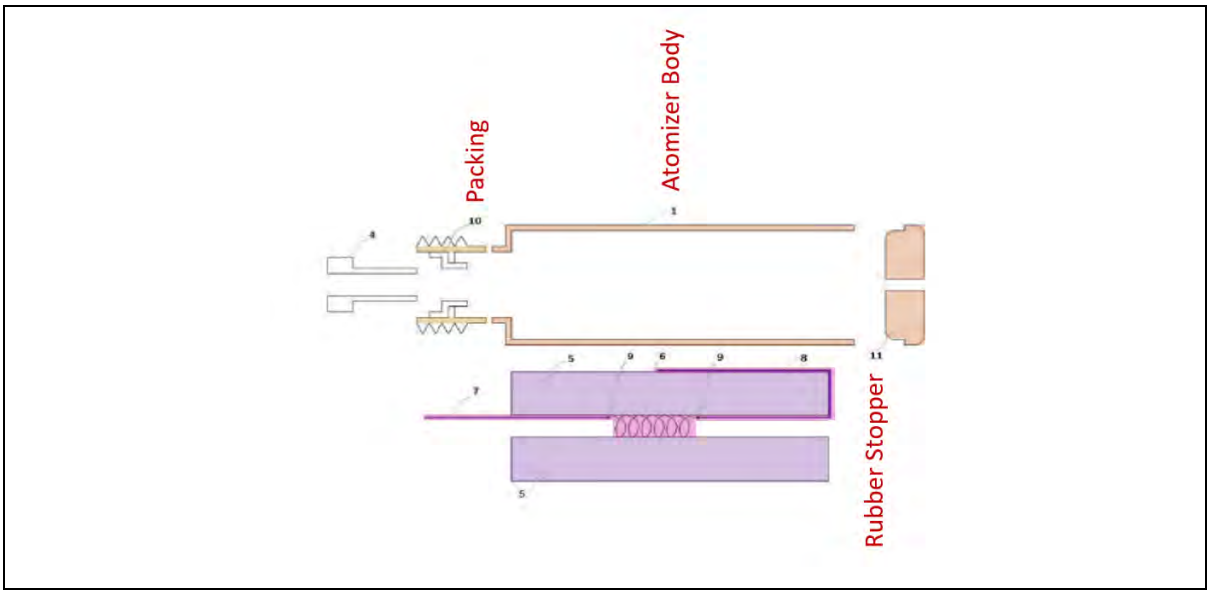
The cartridge component includes many internal components inside the housing, including a filament 6 and fire-resistant fiber 5. *See id.*, at [0013]; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 363. The cartridge also includes holes on the battery screw 2 (e.g., air holes 3 and air pressure transmitting hole 13) and on rubber stopper 11 (i.e., suction hole 12) that allow air to flow through the cartridge. *See id.* For example, if a user draws air through suction hole 12, air will flow from air pressure transmitting hole 13 to suction hole 12. I*d; see also id.* at FIG. 1 (annotated):



Further, Han '364 discloses an integrated-type atomizer that includes both the atomizer and a capsule including nicotine liquid. *See, e.g.,* JX-0631 (Han '364 certified English Translation) at [0014]; *see also* JX-0635 (Leinsing Opening Rpt., Appx. C) at ¶¶ 246-251. Atomizer body 1 is cylindrical and includes battery screw 2, rubber stopper 11, and an outer housing component. *See id.*; *see also* FIG. 4 (annotated):

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While the rubber stopper 11 is removeable from the rest of the atomizer body 1, this is consistent with the written description of the Asserted Patents, which states that "housing 120 may comprise the cartridge wall and a single end-cap" and that "[t]he first end 122 and the second end 124 may be or include end caps." *See* ('881 Patent) at 3:58-59, 5:32-33. Further, the Asserted Patents disclose, "the first and second ends 206 and 208 can be removeable caps[.]" *See id.* at 6:4-5.

Atomizer body also includes an interior (under NJOY's interpretation of "interior") containing many components, including filament 6 and fire-resistant fiber 5. *See id.*; see also JX-0635 (Leinsing Opening Rpt., Appx. C) at ¶¶ 249.

Han '364 also discloses three different solution holding media, at least as NJOY interprets the claims and the solution holding medium (including that the solution holding medium can have holes in it, *see* n. 25, *supra*): (i) fire-resistant fiber 5; (ii) filling fiber 44; and (iii) fiber containing liquid 35, wire mesh 21, and projected wire mesh 22. *See* JX-0631 (Han '364 certified English Translation) at [0013]-[0014], [0016]. Han '364 also discloses that each of the absorbent materials

[redacted]

holds liquid solution within the interior of the housing of the cartridge. *See id.*, at [0013]-[0014]; *see also* JX-0635 (Leinsing Opening Rpt., Appx. C) at ¶¶ 250-253.

6. Red Dragon in view of Fang '044 and Wang '927 – '864 Patent, Claim 1[a]

The evidence will show that Red Dragon in view of Fang '044 and Wang '927 discloses or renders obvious this limitation. *See* JX-0638 (Leinsing Opening Rpt., Appx. E) at ¶¶ 243-252; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 461-505; RX-0074 (Photos of Red Dragon Kit # 1); RX-0076 (Photos of Red Dragon Kit # 2); RX-1309 (Red Dragon Product 3 Piece Kit (Evans 2)); RX-0077 (CT scans of Red Dragon Kit #2); RX-0098 ([vg-project] Red Dragon - Cartridge_Pen Package.zip (Native)); RX-0099 ([vg-project] Red Dragon - Pen.zip (Native)); RPX-0009 (Red Dragon 3-Piece Kit); RPX-0010 (Red Dragon 3-Piece Kit (Sealed); JX-0595 (Fang '044); JX-0594 (Wang '927). NJOY and its expert do not dispute that the Red Dragon discloses or renders obvious this claim limitation. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 916-937; CX-2726C (Vallee Reb. Rpt.) at Appx. E, ¶ 114.

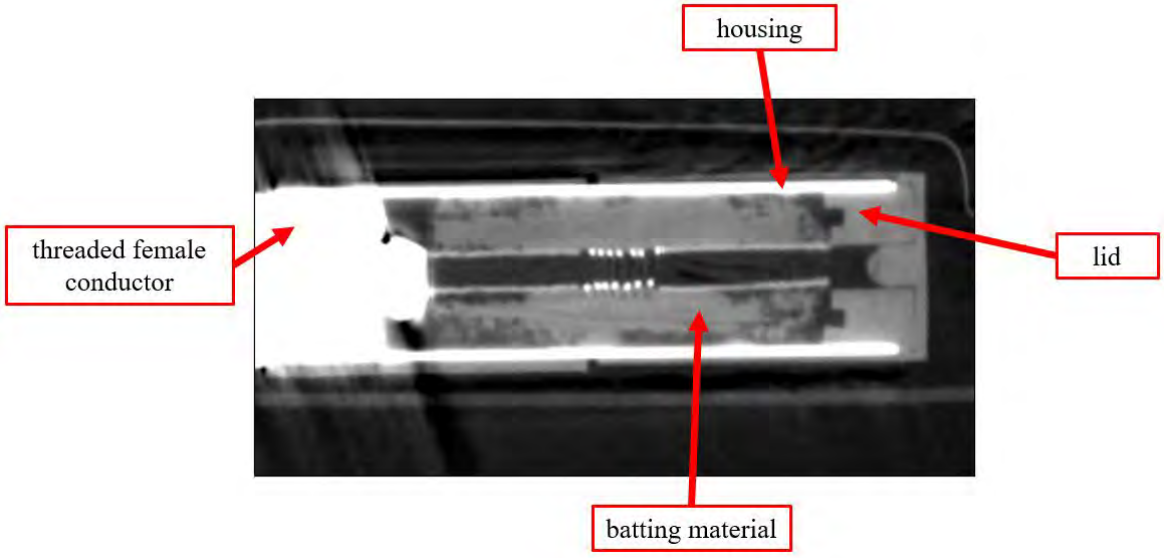
The Red Dragon cartomizer includes a metallic housing surrounded by an orange paper label. *See, e.g.,* RX-0074 (Photos of Red Dragon Kit #1) at RX-0074.22, 45, 64; RX-0077 at RX-0077.22; *see also* JX-0638C (Leinsing Opening Rpt., Appx. E) at ¶¶ 243-244. The metallic housing comprises an interior under NJOY's interpretation of "interior". *Id.* The Red Dragon also anticipates the claimed "solution holding medium". For example, the housing includes a batting material that absorbs and holds the e-liquid solution. *See, e.g.,* RX-0077 at RX-0077.22; *see also* RX-0074 (Photos of Red Dragon Kit #1) at RX-0074.67; *see also* JX-0638C (Leinsing Opening Rpt., Appx. E) at ¶¶ 250-251. The batting material serves as a location or mechanism to hold the e-liquid solution, at least as NJOY interprets the claims and the solution holding medium (including that the solution holding medium can have holes in it, *see* n. 25, *supra*). *Id.*

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See RX-0074 (Photos of Red Dragon Kit #1) at RX-0074.45 (annotated in red); *see also* JX-0638C (Leinsing Invalidity Rpt., Appx. E) at ¶ 244.



See RX-0077 (Photos of Red Dragon Kit #2) at RX-0077.22 (annotated in red); *see also* JX-0638C (Leinsing Invalidity Rpt., Appx. E) at ¶ 244.

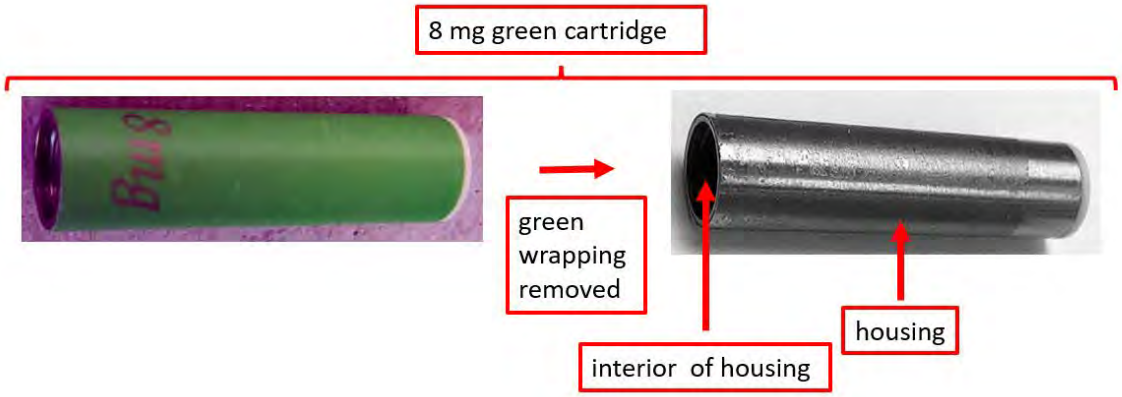
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[redacted]

1. Smoke Fifty-One Duo in view of Fang '044 and Wang '927 – '864 Patent, Claim 1[a]

The evidence will show that Smoke Fifty-One Duo in view of Fang '044 and Wang '927 discloses or renders obvious this limitation. *See* JX-0636C (Leinsing Opening Rpt., Appx. D) at ¶¶ 233-241; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 413-460; RX-0130C (Declaration of Yardimici); JX-0595 (Fang '044); JX-0594 (Wang '927). NJOY and its expert do not dispute that Smoke Fifty-One Duo discloses or renders obvious this claim limitation. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 897-916; CX-2726C (Vallee Reb. Rpt.) at Appx. D, ¶ 71.

The evidence will show that the Red Dragon includes a housing having an interior and a solution holding medium adapted to hold a solution. For example, the evidence will show that the Smoke Fifty-One Duo includes a metallic housing comprising an interior under NJOY's interpretation of "interior".



See RX-0130C (Declaration of Yardimici) at RX-0130C.37-38; *see also* RX-0130C (Declaration of Yardimici) at RX-0130C.38; RX-0130C (Declaration of Yardimici) at RX-0130C.30; JX-0636C (Leinsing Opening Rpt., Appx. D) at ¶¶ 234.

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[redacted]

Further, the Smoke Fifty-One Duo discloses a solution holding medium adapted to hold a solution, at least as NJOY interprets the claims and the solution holding medium (including that the solution holding medium can have holes in it, *see* n. 25, *supra*). For example, the housing includes an absorbent material (e.g., nicotine pad) that absorbs and holds the e-liquid solution. *See, e.g.,* RX-0130C (Declaration of Yardimici) at RX-0130C.30; RX-0130C (Declaration of Yardimici) at RX-0130C.29; *see also* JX-0636C (Leinsing Opening Rpt., Appx. D) at ¶¶ 235-238. The nicotine pad is a location or mechanism that holds e-liquid solution. *Id.*

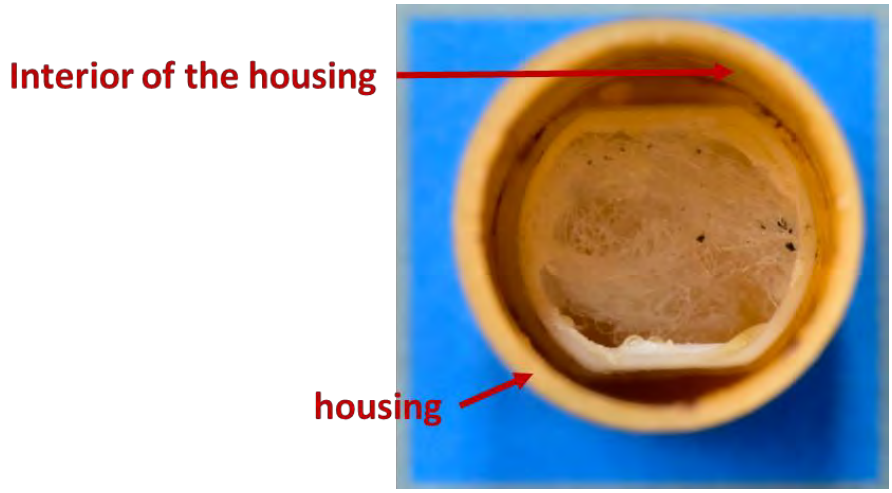
2. NJOY NPRO in view of Wang '554, Fang '044, and Wang '927 – '864 Patent, Claim 1[a]

The evidence will show that NJOY NPRO in view of Wang '554, Fang '044, and Wang '927 discloses or renders obvious this limitation. *See* JX-0640C (Leinsing Opening Rpt., Appx. G) at ¶¶ 238-248; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 548-612; RX-0082 (Photos of NJOY NPRO); JX-0404 (CT Scans of NJOY NPRO); RPX-0007 (NJOY NPRO Sample); RX-0095 (CT Scan Raw Data of NJOY NPRO); RX-0005 (Wang '554); JX-0595 (Fang '044). NJOY and its expert do not dispute that the NJOY NPRO discloses or renders obvious this claim limitation. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 963-980; CX-2726C (Vallee Reb. Rpt.) at Appx. G, ¶ 208.

The NJOY NPRO cartridge includes a housing and the housing has an interior. *See, e.g.,* RX-0082 (Photos of NJOY NPRO) at RX-0082.83; RX-0082 (Photos of NJOY NPRO); JX-0404 (CT Scans of NJOY NPRO); RPX-0007 (NJOY NPRO Sample); RX_0095 (CT Scan Raw Data of NJOY NPRO); *see also* JX-0640C (Leinsing Opening Rpt., Appx. G) at ¶¶ 238-248.

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[redacted]



See RX-0082 (Photos of NJOY NPRO) at RX-0082.83 (annotated in red).

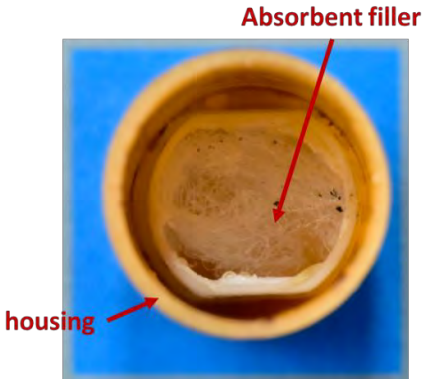
The NJOY NPRO cartridge includes a solution holding medium adapted to hold a solution.

[redacted]

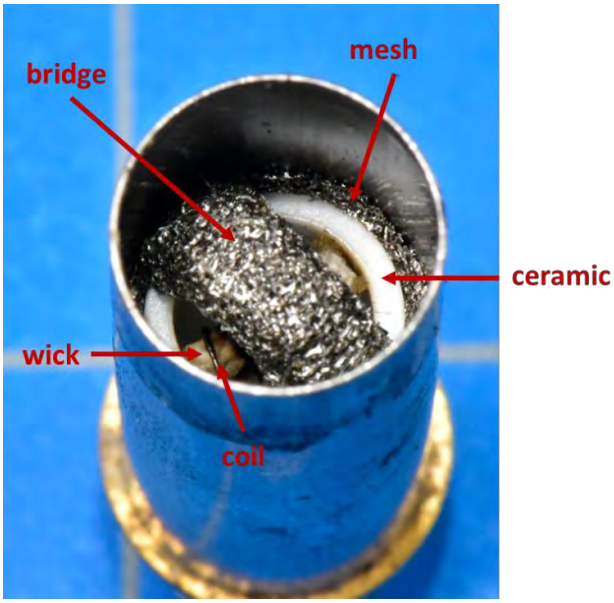
See JX-0482C (NJOY Welcomes to the Tobacco Plus Expo 2009) at JX-0482C.3-4; RX-0082 (Photos of NJOY NPRO); JX-0404 (CT Scans of NJOY NPRO); RPX-0007 (NJOY NPRO Sample); RX-0095 (CT Scan Raw Data of NJOY NPRO). [redacted]

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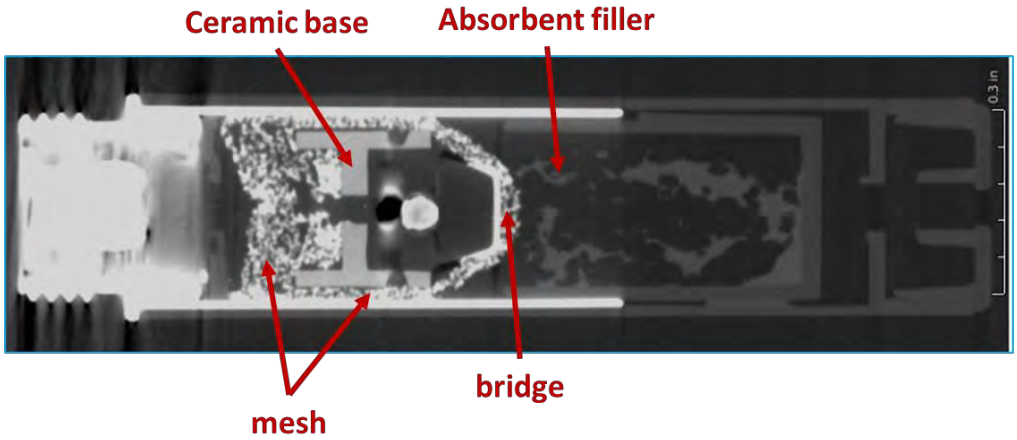
[redacted]



See RX-0082 (Photos of NJOY NPRO) at RX-0082.83 (annotated in red).



See RX-0082 (Photos of NJOY NPRO) at RX-0082.67 (annotated in red).



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[redacted]

See JX-0404 (NPRO Photos) at JX-0404.11 (annotated in red).

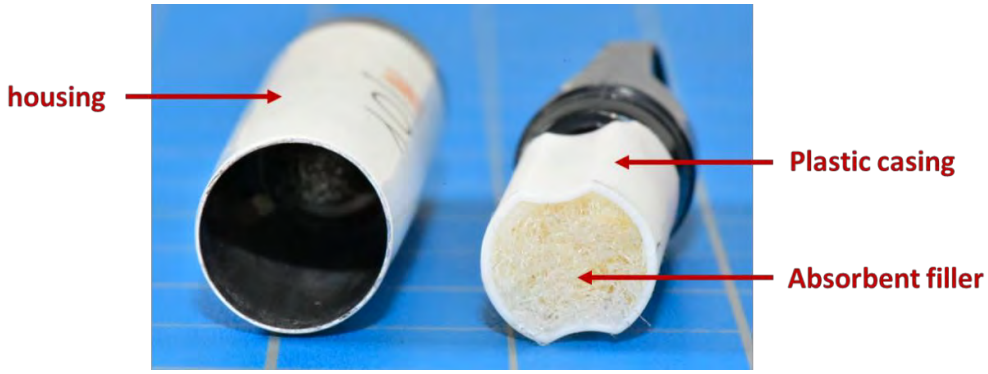
The absorbent filler, the bridge, and the mesh surrounding the ceramic base collectively holds the liquid solution. *See, e.g.,* RX-0084 (Photos of NJOY NCIG E-Cig) at RX-0084.86, 87; RX-0082 (Photos of NJOY NPRO); JX-0404 (CT Scans of NJOY NPRO); RPX-0007 (NJOY NPRO Sample); RX-0095 (CT Scan Raw Data of NJOY NPRO); *see also* JX-0632C (Leinsing Invalidity Rpt) at ¶¶ 578-580; JX-0640C (Leinsing Opening Rpt., Appx. G) at ¶¶ 246-247. The absorbent filler, the bridge, and the mesh surrounding the ceramic base collectively is a location or mechanism that holds the liquid solution, at least as NJOY interprets the claims and the solution holding medium (including that the solution holding medium can have holes in it), *see* n. 25, *supra*). *Id.*

3. NJOY NCIG in view of Wang '554, Fang '044, and Wang '927 – '864 Patent, Claim 1[a]

For the same reasons why NJOY NPRO in view of Wang '554, Fang '044, and Wang '927 discloses or renders obvious this limitation, the NJOY NCIG in view of Wang '554, Fang '044, and Wang '927 also discloses or renders obvious this limitation. *See* JX-0632C (Leinsing Invalidity Rpt.) at ¶¶ 584-612; JX-0640C (Leinsing Invalidity Rpt., Appx. G) at ¶¶ 238-248; RPX-0006 (NJOY NCIG Sample); RX-0084 (Photos of NJOY NCIG); JX-0402 (CT Scans of NJOY NCIG); RX-0090 (CT scan of NCIG); RX-0109C (NJOY NCIG User Guide); JX-0482C (NJOY Welcomes to the Tobacco Plus Expo 2009), JX-0482C.3.

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[redacted]



RX-0084 (Photos of NJOY NCIG) at RX-0084.89 (annotated in red).



RX-0084 (Photos of NJOY NCIG) at RX-0084.87 (annotated in red).

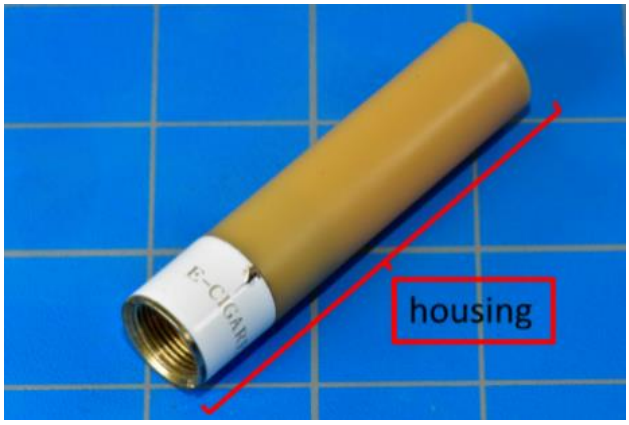
4. Cigarette Electronique – '864 Patent, Claim 1[a]

The evidence will show that Cigarette Electronique discloses or renders obvious this limitation. *See* JX-0639C (Leinsing Opening Rpt., Appx. F) at ¶¶ 276-299; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 506-547; RX-0072 (Photos of Cigarette Electronique); RPX-0011 (Cigarette Electronique Kit).

For example, the evidence will show the Cigarette Electronique cartridge includes a housing with an interior.

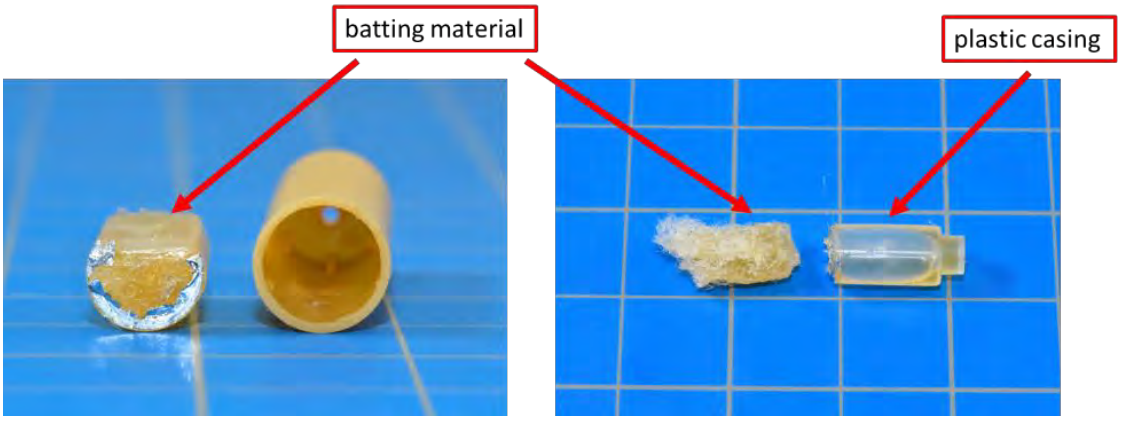
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[redacted]



See RX-0072 at RX-0072.37; (annotated in red); *see also, e.g.,* JX-0401 (Photos of Cigarette Electronique) at JX-0401.5 (annotated in red); JX-0639C (Leinsing Opening Rpt., Appx. F) at ¶¶ 276-279.

The housing of the Cigarette Electronique device further includes a solution holding medium, at least as NJOY interprets the claims and the solution holding medium (including that the solution holding medium can have holes in it, *see* n. 25, *supra*) in the form of a batting material (an absorbent, fibrous material to be saturated with liquid) held in a plastic casing. The two photos below show the portion of the cartridge section with the batting material and the clear plastic casing removed.

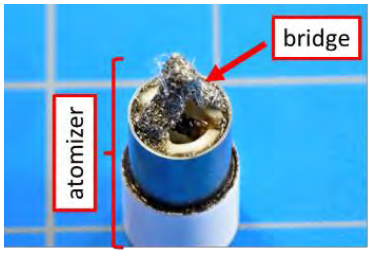


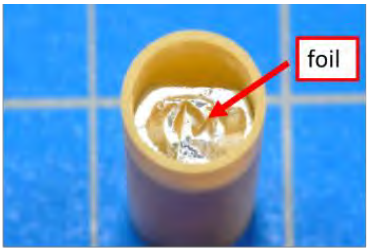
See RX-0072 at RX-0072.96 (annotated in red), RX-0072 at RX-0072.101 (annotated in red); *see also* JX-0639C (Leinsing Opening Rpt., Appx. F) at ¶ 280.

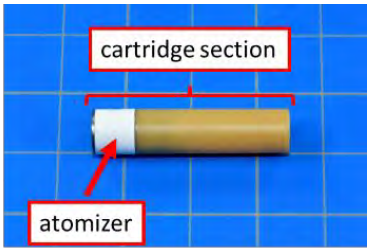
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[redacted]

The cartridge section includes an atomizer, which includes a bridge. The bridge consists of a metallic mesh formed at one portion into a "V" shape. The housing includes a foil, which covers one end of the batting material to prevent leakage of the liquid contained therein. When the cartridge section is fully assembled, as demonstrated in the third photo below (far right), the bridge pierces the foil and enters into physical contact with the batting material.





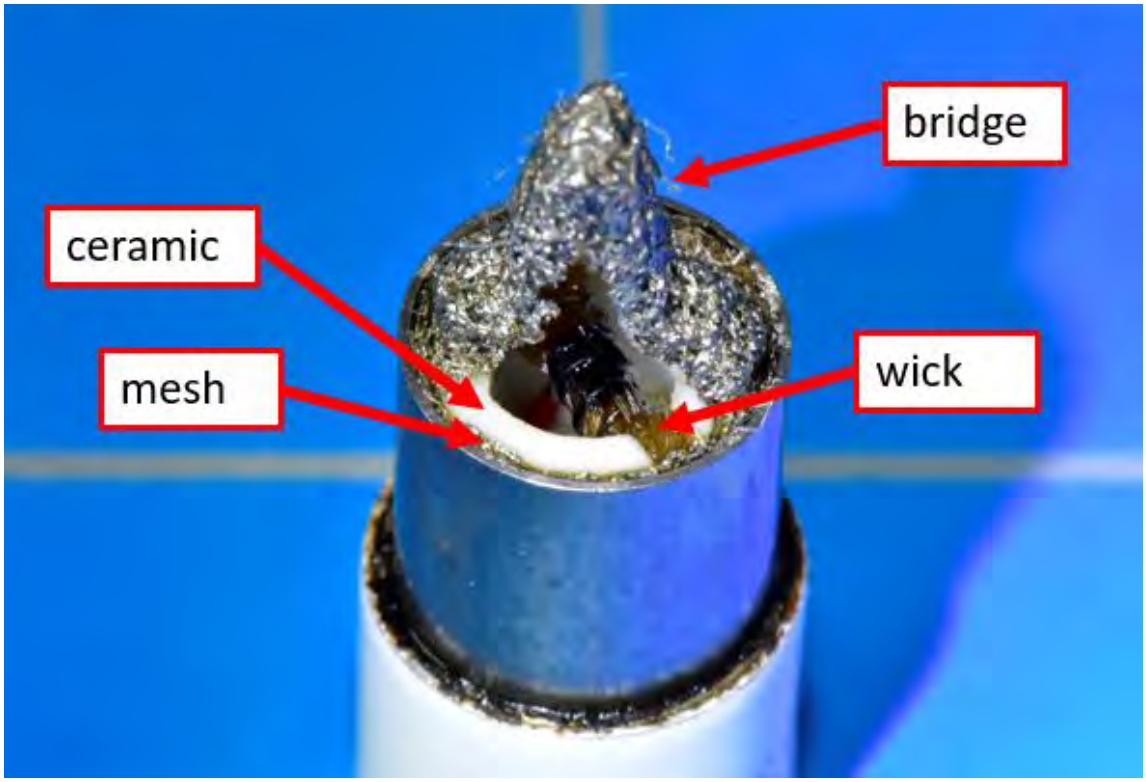


See RX-0072 at RX-0072.53; (annotated in red), RX-0072 at RX-0072.74; (annotated in red), RX-0072 at RX-0072.31; *see also* JX-0639C (Leinsing Opening Rpt., Appx. F) at ¶ 281.

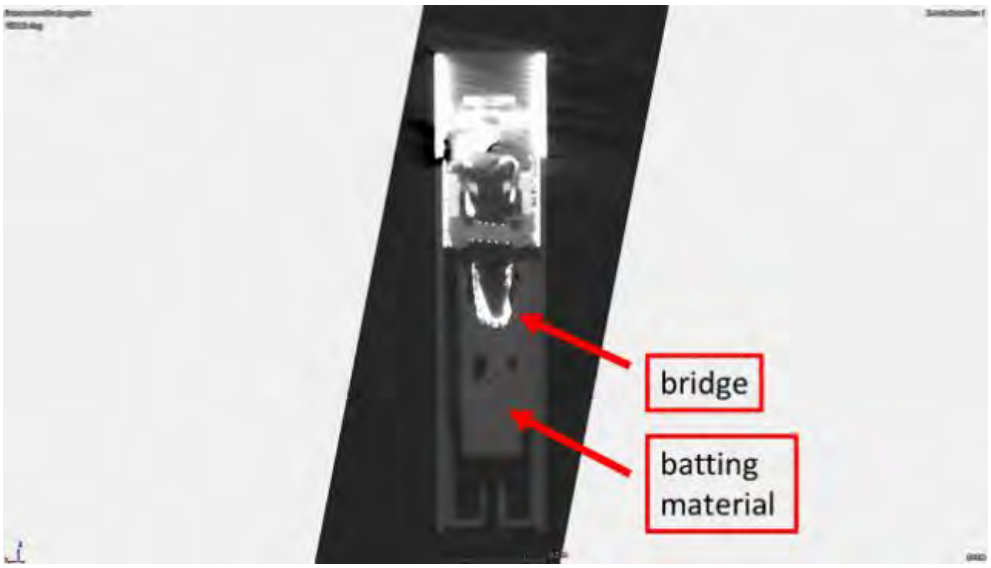
The CT scan below shows the bridge in contact with the batting material within the housing. Liquid from the batting material is drawn to the bridge, which further draws the liquid towards the heating element. For example, the bridge element is in fluid communication with the batting material, and with its metallic mesh extension surrounding the ceramic element, and a wick that extends through the heating coil. This assists in retention and delivery of the liquid from the batting material to the bridge, to the mesh and the wick. Therefore, the solution holding medium includes the batting material, the bridge, and the mesh surrounding the ceramic.

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[redacted]



See CX-2763 at CX-2763.9; *see also* JX-0639C (Leinsing Opening Rpt., Appx. F) at ¶ 282.



See JX-0401 (Photos of Cigarette Electronique) at JX-0401.5 (annotated in red).

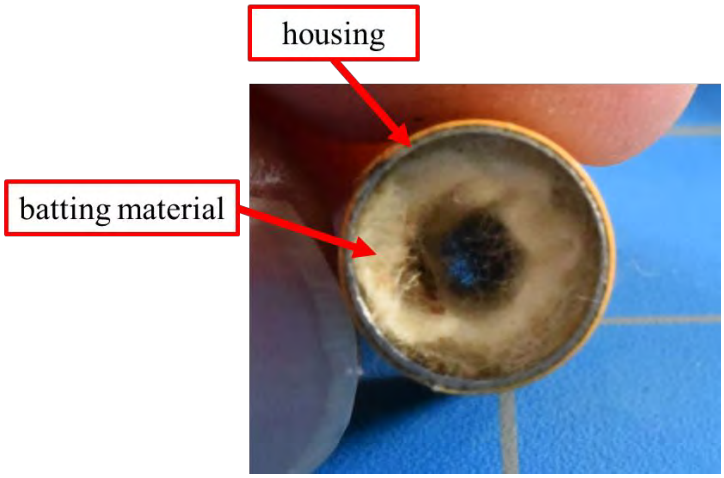
NJOY Exhibit 2008.0557
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[redacted]

5. Fuma Prototype – '864 Patent, Claim 1[a]

The Evidence will show that the Fuma Prototype discloses this limitation. *See, e.g.,* Leinsing Opening Rpt., Appx. H) at ¶¶ 216-220; NJOY's 13th Supp. ROG Responses; RX-0078 (Photos of Fuma Starter Kit); RX-0079 (CT scans of Fuma Starter Kit).

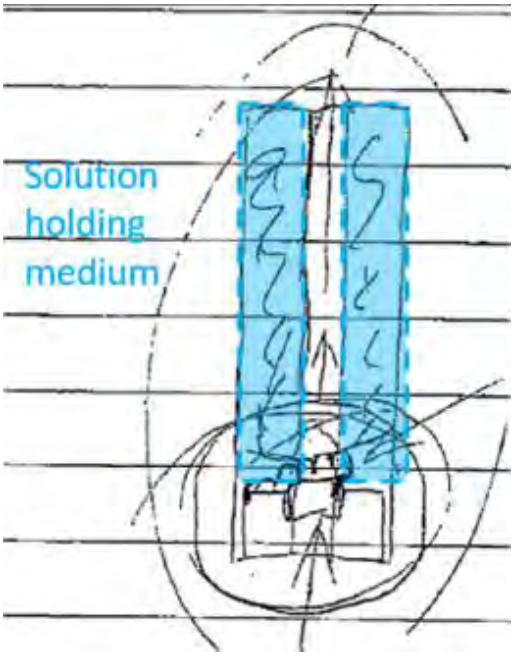
The housing of the Fuma Prototype further includes a solution holding medium, at least as NJOY interprets the claims and the solution holding medium (including that the solution holding medium can have holes in it, *see* n. 25, *supra*) in the form of a batting material (an absorbent, fibrous material to be saturated with liquid). *See, e.g.,* Leinsing Opening Rpt., Appx. H) at ¶ 216.



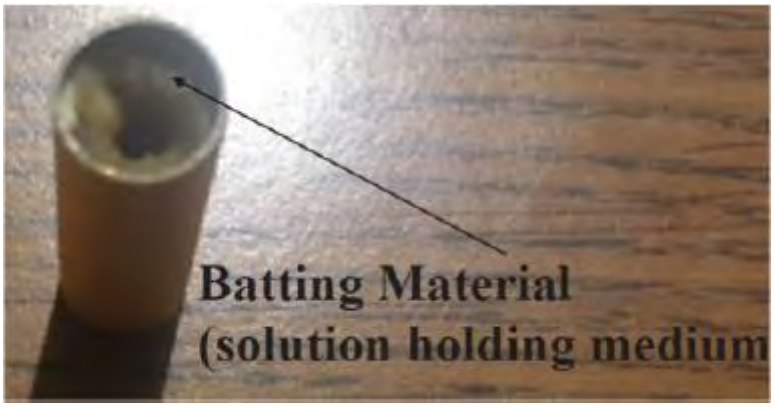
See RX-0078 (Photos of Fuma Starter Kit) at RX-0078.20 (annotated in red).

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[redacted]



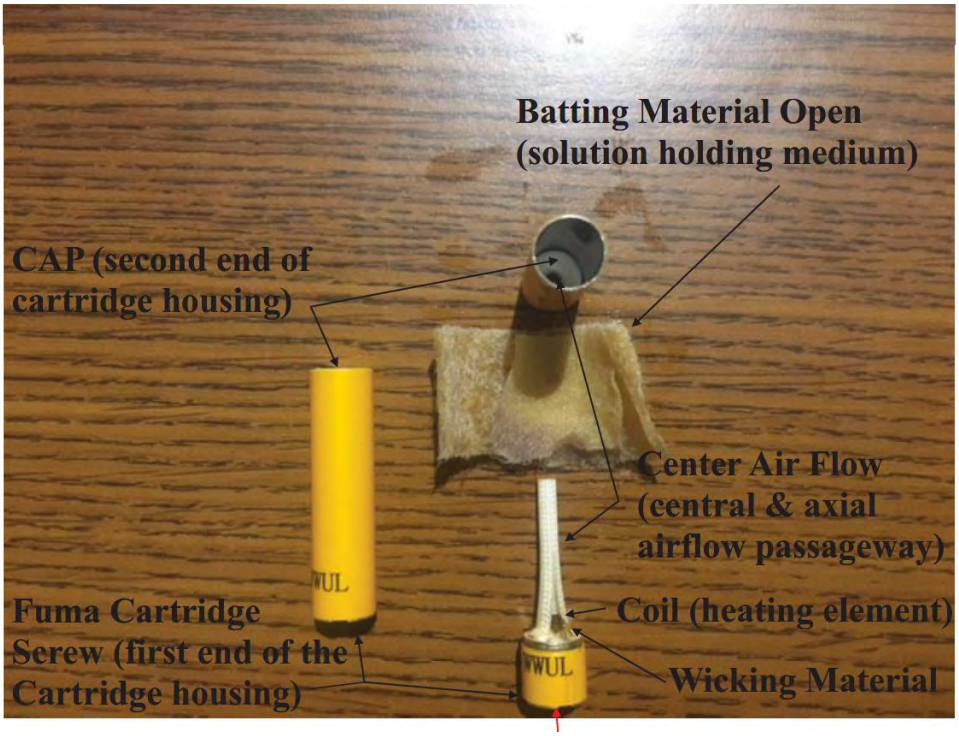
See '864 Priority Chart at 2 (citing CRTP Attachment C).



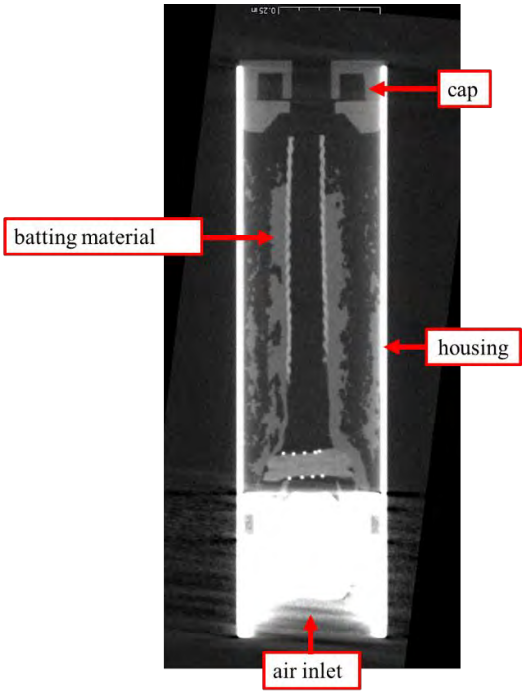
See '864 Priority Chart at 3 (citing CRTP Attachment D at Fig. 7).

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[redacted]

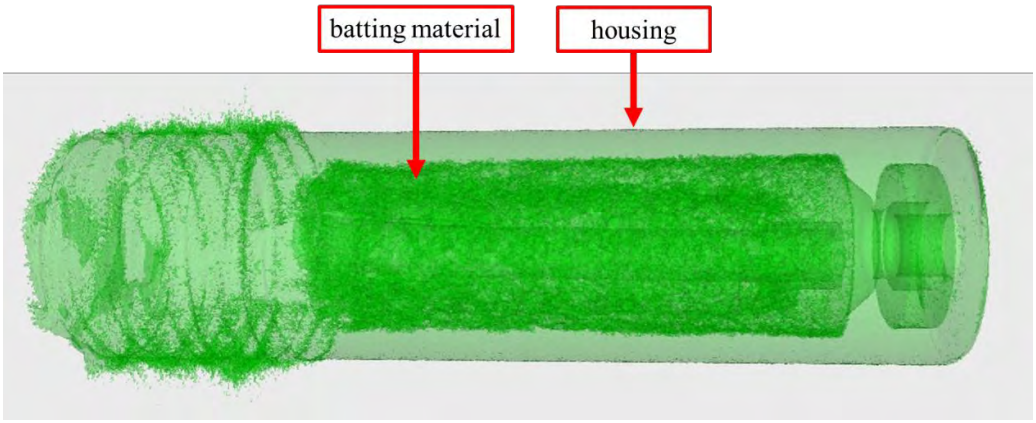


See CRTP Exhibit A at Fig. 11.



See RX-0079 (CT scans of Fuma Starter Kit) at RX-0079.17 (annotated in red).

[redacted]



See RX-0079 (CT scans of Fuma Starter Kit) at RX-0079.41 (annotated in red).

The inventor of the Asserted Patents further admitted that the Fuma Prototype discloses claim element 1(a). *See* Conley '864 Declaration at ¶5 (Independent claim 41 – Recitation 1).

NJOY also admitted that the Fuma Prototype discloses claim element 1(a). *See* '864 Priority Chart at 2-3.

d. '864 Patent, claim 1[b]: "the housing having a first end and a second end that is opposite the first end, the housing having a first aperture proximate the first end and a second aperture proximate the second end"

1. Xia '610 in view of Wang '554 and Fang '044 and Smoke Fifty-One Duo– '864 Patent, Claim 1[b]

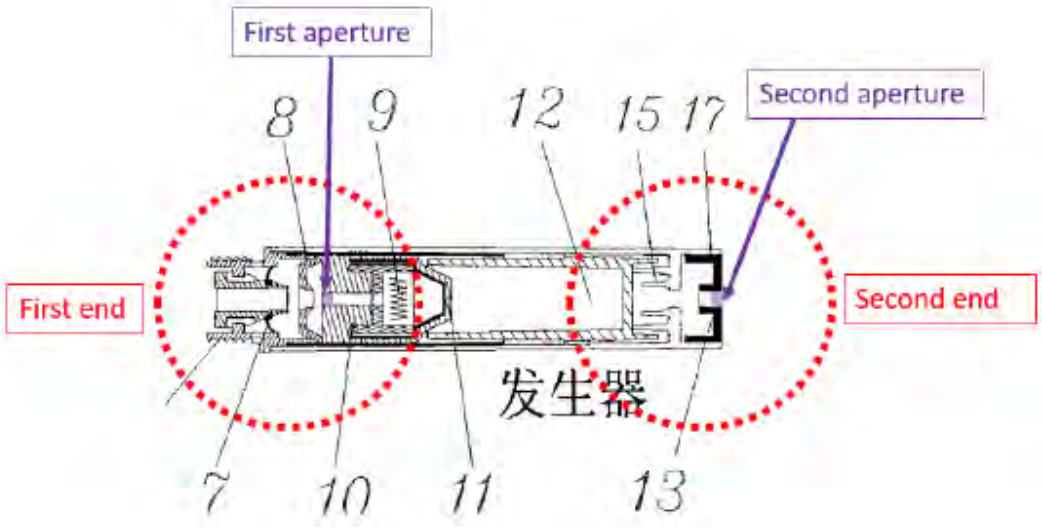
The evidence will show that Xia '610 discloses or renders obvious, alone or in combination with Wang '554 and Fang '044 and Smoke Fifty-One Duo this limitation. *See, e.g.,* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 650-656; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 221-265; JX-0596 (Xia '610); JX-0595 (Fang '044); RX-0130C (Declaration of Yardimici). Complaint's expert Dr. Vallee confirmed that Xia '610 discloses an exterior housing of the "generator" portion. *See, e.g.,* RX-1015C (Vallee 4/12/24 Tr.) at 381:21-25.

For example, the evidence will show that Xia '610 illustrates the "generator" portion as including first and second ends, and first and second apertures at least as NJOY interprets the

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[redacted]

claims and the extent of the "ends" of the device (including a general area of the cartridge, rather than e.g., a furthest surface[26]).



See JX-0596 (Xia '610) at FIG. 2; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 652-653.

The identified "first end" and "second end" in the above annotated image are located opposite each other, and each has an aperture proximate thereto. *Id.*

The identified first aperture is also part of the claimed "housing" at least as NJOY interprets the claims and the "housing" (including that internal components can serve as part of the claimed

[26] For example, Complainant's expert Dr. Vallee has testified that the first and second "end" of the housing are general areas, and are not limited to the furthest surface. *See, e.g.,* RX-1014C (Vallee 4/11/24 Tr.) at 80:7-20 (testifying with respect to the JUUL1 Pod). Complainant's expert Dr. Vallee has also testified that internal components of an e-cigarette, [redacted] are "on the right end" of a device, even if there are other components that are further rightward. *See, e.g.,* RX-1014C (Vallee 4/11/24 Tr.) at 80:21-81:11; *see also id.* at 84:6-85:8 (testifying similarly with the alleged first end of the JUUL1 Pod: "The distal end is made up of as we discussed before that bottom surface, but there are also surfaces on the inside that are on that end"); *id.* at 89:14-90:10 ("I'm interpreting distal end as being the distal portion as opposed to an absolute surface"); 208:10-215:2 (the claimed "end" can "include some small parts of the side," not "just the furthest edge")

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[redacted]

housing[27]). Complainant's expert Dr. Vallee has also testified that the claimed first aperture can be in a component that is internal to the cartridge, such as the [redacted], even if there are internal components between the first aperture and the edge of the cartridge. See, e.g., RX-1014C (Vallee 4/11/24 Tr.) at 182:3-13; Ex. 3.

To the extent that the claimed "end" must be the furthest edge of the cartridge, the evidence will also show that the identified first apertures is "proximate" the first end. For example, Complainant's expert Dr. Vallee has testified that the alleged first aperture in Xia '610 is closer to the first end than the second end. *See, e.g.,* RX-1015C (Vallee 4/12/24 Tr.) 377:22-24. Therefore, the first aperture is not only subjectively "close to" the furthest edge, it is also closer to the first furthest edge than to the second furthest edge in relative positioning.

Mr. Leinsing will opine that a POSITA would understand that the areas identified as the first and second apertures in the images are indeed apertures because this is a cross-sectional view of the example e-cigarette, and as Xia '610 explains, air flows through them. For example, Xia '610 describes that air flows in from the left end of the cartridge portion, through the body of the

[27] For example, with respect to infringement, NJOY asserts that internal components of a cartridge can serve as the claimed "housing." *See e.g.,* CX-2157C (Vallee Opening Rpt.) at ¶¶737-744 ([redacted]); CX-2157C (Vallee Opening Rpt.) at ¶¶ 1645-52 (identifying the (1) the exterior structure of the Cartridge Base, (2) External Stainless Tube, and (3) Mouth End Cap form the VUSE Solo Cartridge's housing); RX-1531C (19-cv-00260, 120_04 -Vallee Ex. D) at RX-1531C.60-61; RX-1529C (19-cv-00260, Dkt. 120-9 ('881 chart versus Vuse Ciro)) at RX-1529C.6-7.

Complainant's expert Dr. Vallee has also testified that the claimed first aperture can be in a component that is internal to the cartridge, such as the [redacted], even if there are internal components between the first aperture and the edge of the cartridge. *See, e.g.,* RX-1014C (Vallee 4/11/24 Tr.) at 182:3-13; Ex. 3.

Additionally, Complainant's expert Dr. Vallee has testified that even distinct components that are connected to the housing of an e-cigarette cartridge are part of the housing because they are connected to the housing, such as the [redacted]. *See* RX-1014C (Vallee 4/11/24 Tr.) at 229:9-230:17.

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generator portion, and out the right end. JX-0596 (Xia '610) at JX-0596.10; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶654. For example, by explaining that air flows in the inlets, past the diaphragm 7, and through the room with heater 9, Xia '610 makes clear that the identified first aperture is an aperture because air flows through it. For the user's suction at the suction nozzle 13 to draw air into the device and vibrate the diaphragm 7, there must be fluid communication (*i.e.,* air movement) from the area identified as the first aperture through to the are identified as the second aperture.

Although there are additional apertures disclosed in Xia '610, that does not detract from the fact that the area identified in the above annotated figure serves as a claimed first aperture; the claim language does not require that there be only a single aperture proximate the first end of the cartridge.

To the extent that Xia '610 does not disclose this feature, Xia '610 alone, Xia '610 in view of Wang '554, and Xia '610 in view of Fang '044, Xia in view of Smoke Fifty-One Duo, and Xia '610 in view of Wang '554 and Fang '044 and Smoke Fifty-One Duo render it obvious. For example, Mr. Leinsing will opine it would have been obvious to modify Xia '610 alone, in view of Wang '554, in view of Fang '044, and in view of Smoke Fifty-One Duo to move Xia '610's central aperture that is annotated in the above figures to the left of the cartridge, such that it is located at the end. *See, e.g.,* JX-0632C (Leinsing Opening Rpt.) at ¶¶ 231-240. Mr. Leinsing will opine that a POSITA would be motivated to make this modification in view of Xia '610 alone, in view of Wang '554, in view of Fang '044, and/or in view of Smoke Fifty-One Duo because having the aperture further to the left could allow the design to move the rest of the internal components leftward, resulting in more available space for the liquid storage 12 with the same external dimensions. *Id.* This could result in increased storage of vaporizing liquid, and therefore improved

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customer experience through a reduction in the frequency of refills/replacements of the cartridge portions.

Mr. Leinsing will also opine that a POSITA would also have been motivated to modify Xia '610's cartridge to include a first aperture at the end in view of Xia '610 alone, and in view of Wang '554, because there are benefits to doing it that way, there was a motivation to combine Xia '610 with Wang '554 as set forth above in Section IV.E.3.xii.a, and Wang '554 discloses it. For example, it would be known to any POSITA to be a simpler design, which is easier and cheaper to manufacture. *See, e.g.,* JX-0632C (Leinsing Opening Rpt.) at ¶¶ 231-240. For example, forming an aperture on the outer edge and surface of the end of the cartridge is easier to manufacture because it is easier to access and can be done in more ways than manufacturing an aperture elsewhere on the first end. *Id.* Having the aperture on the outer edge and surface can also reduce the need for additional parts, for example parts that go within the first end, that would define an aperture. *Id.* Additional parts to catch fluid droplets would also not be required because there wouldn't be holes to leak out and the area for the check valves could eliminate the flapping check valves and be used a fluid trap. *Id.*

Mr. Leinsing will opine that moving the air intake hole that serves as the claimed first aperture to the edge of the first end of Xia '610's cartridge could for example be accomplished by moving Xia '610's air inlets 702 to the controller portion (and extending through a hole in the center of the connection between the cartridge and the controller). *See, e.g.,* JX-0632C (Leinsing Opening Rpt.) at ¶ 233. In that arrangement, the opening of the connecting conductor A5 would serve as the first aperture and thus allow airflow down the middle of the housing. This is also an aperture in the housing, at least as NJOY interprets the claims and the "housing," as "the threaded connector is part of the housing." RX-1555 (IPR2024-00160 Patent Owner Surreply) at 2; RX-

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[redacted]

1556 (IPR2024-00161 Patent Owner Surreply) at 2. Alternatively, as NJOY has argued, it is sufficient to meet the claims that "the housing has an aperture to accommodate the threaded connector." *Id.*

Mr. Leinsing will opine that another benefit of making this modification is the simplification of manufacturing. *See, e.g.,* JX-0632C (Leinsing Opening Rpt.) at ¶ 234. For example, in Xia '610's illustrated design, there is a need for vibrating diaphragms to be present near the intake holes 702 which could be removed by moving the air intake holes to the controller portion. Xia '610 discloses that the vibrating diaphragms "may be made of rubber or silica gel" so that they vibrate as air passes by them. JX-0596 (Xia '610) at JX-0596.12. However, manufacturing the device in this way requires milling grooves for the diaphragms to secure into, and insertion of the diaphragms as separate additional steps in the manufacturing process. The diaphragms also require separate air inlets to be drilled or added when there is already a center flow path in the device. Mr. Leinsing will opine that a POSITA would be motivated instead to use an air pressure sensor as in Fang '044 and Wang '554 and Smoke Fifty-One Duo, rather than the combination of a sound sensor and vibrating diaphragms. *See, e.g.,* JX-0632C (Leinsing Opening Rpt.) at ¶¶ 231-240. A POSITA could have, for example, exchanged the off-the-shelf the microphone 4 of Xia to an off-the-shelf pressure sensor to initiate activation of the heater.

This would be obvious because a pressure sensor is a well-known way to detect suction, as Fang '044 and Wang '554 and Smoke Fifty-One Duo demonstrate for example. Mr. Leinsing will opine that a POSITA would have understood that detecting pressure changes (caused by user suction) would allow the amount of energy sent to the heating coil to be proportional to the amount of pressure or flow rate and result in more precise control of the heat to cause vapor. *See, e.g.,* JX-0632C (Leinsing Opening Rpt.) at ¶¶ 231-240. Additionally, pressure sensors can be more robust

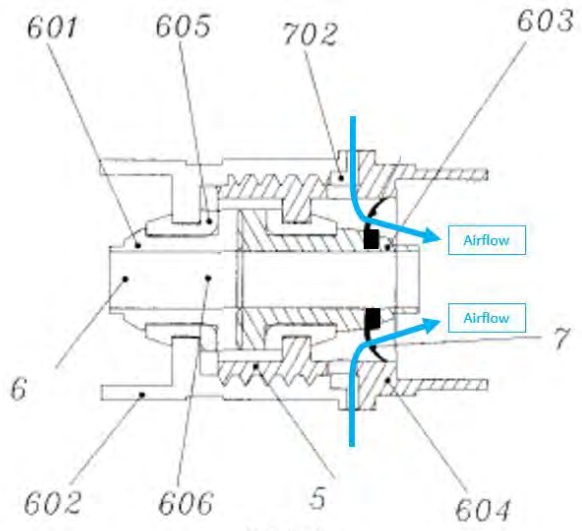
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when exposed to liquids (like from leakage from the cartridge) or dust (like from a user's pocket) than microphones. A POSITA would also have had a reasonable likelihood of success. For example, each of Fang '044 and Wang '554 and Smoke Fifty-One Duo disclose the use of a pressure sensor in an e-cigarette application for initiating the heater activation. Specifically, Fang '044 states that: "[w]hen the utility model is in use, the smoking channel 10 generates a negative pressure in the atomizer control switch 4 by a suction force of a user, the silicon film-coated tablet 11 bulges in the support 13 towards the direction of the switch circuit board 12, under the control of the Hall element and the field-effect tube, the switch circuit board 12 makes the electric heating film wire 16 be communicated with the battery 3, due to the action of the capillary tubes[.]" Similarly, Wang '554 states that: "[t]he sensor 112 of the cigarette rod is a switch device that drives the circuit control board 113 and then drives the discharge output of the battery 110. The sensor is used to collect airflow and pressure changes generated by smoking motions in real time, a method of judging resistance value changes may be adopted, and a specially-made diaphragm device may also be used to sense on-off signals…. Since the motions of the smoker may control the sensor 112, the working time and pause time of the electric heater 104 also change intermittently with the motions of the smoker, thereby atomizing the tobacco extract 103 around it intermittently."

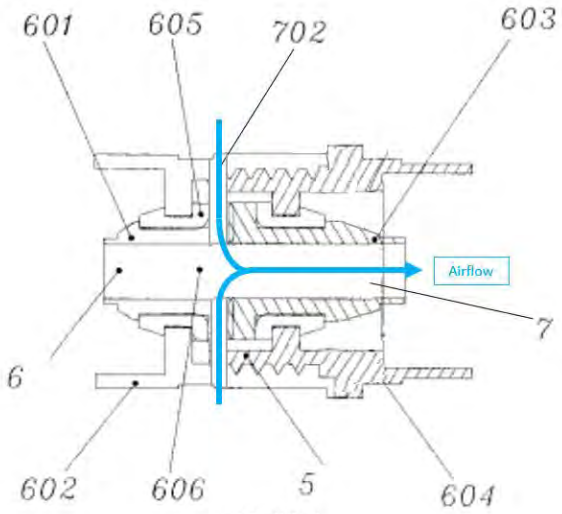
For example, the following images illustrate the difference between Xia '610's original design and an example obvious modification of it:

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[redacted]



Original



Modified

See JX-0632C (Leinsing Opening Rpt.) at ¶ 236.

NJOY asserts that this modification would involve replacing one through-hole with two through-holes that must align when the device is threadedly attached. If an adult consumer does not tighten the pieces to precisely the right position, no air will be able to enter the device. NJOY's First Amended Validity Contentions (03/12/2023) at 313. However, Mr. Leinsing will opine this is an incorrect interpretation of the proposed modification. For example, as illustrated in the

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modified figures above, the through hole that a POSITA would be motivated to include would simply be a hole in 602 that would allow air to enter the device beyond the end of 604. That is, this modification does not require that there be a through hole in 604, rather, it requires that the hole in 602 be in a location further than the end of 604. *See, e.g.,* JX-0632C (Leinsing Opening Rpt.) at ¶¶ 237. To the extent a user fails to sufficiently tighten the cartridge to the battery portion, this gap would only be bigger than designed, allowing more air to enter the device, rather than less.

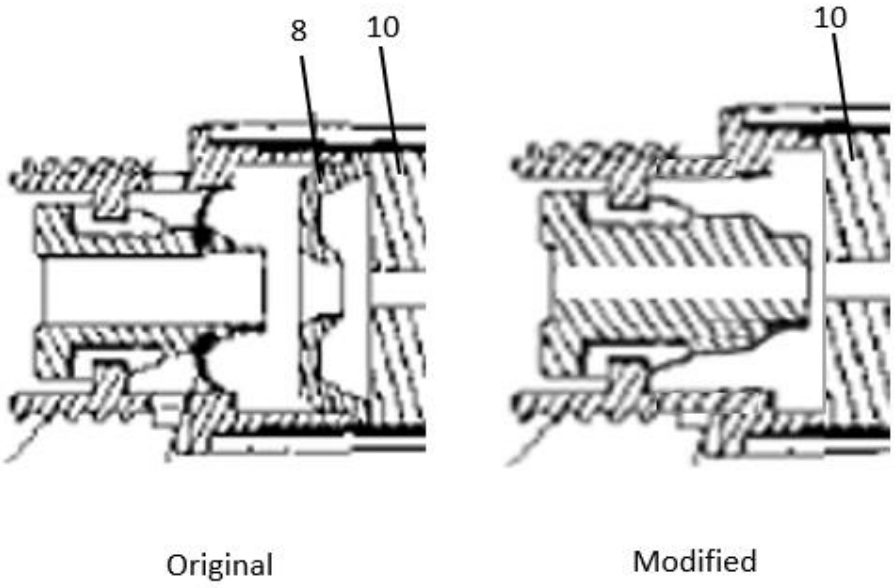
NJOY asserts that with this modification, "air would be entering the device through the housing perpendicular to the central longitudinal axis of the housing as air inlet 702 is perpendicular to said axis." *Id.* However, Mr. Leinsing will opine this ignores that in the modification, the air inlets from which air enters the device from the outside world are in the housing of the battery portion, not the claimed "housing" of the cartridge, but the air then travels into the cartridge through an aperture in the cartridge housing. That is, the housing of the cartridge portion includes 604 and 603, and the air enters the cartridge through the aperture on the end of that housing, in the aperture in 603. *See, e.g.,* JX-0632C (Leinsing Opening Rpt.) at ¶ 238.

Mr. Leinsing will opine that another manufacturing benefit to this modification is the ability to remove the liquid blocking plate 8, which further reduces the number of parts in the device. For example, Xia '610 explains that "[t]he liquid-blocking plate 8 may prevent the chemical liquid in the secondary liquid storage chamber 10 from flowing out, so as to prevent the chemical liquid from flowing into the controller and affecting the circuit." JX-0596 (Xia '610) at JX-0596.13; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 239. It does this through its shape, which has concave collection regions for catching fluid. However, by moving the air inlet holes to the controller portion means the holes in the generator portion can be eliminated. This makes

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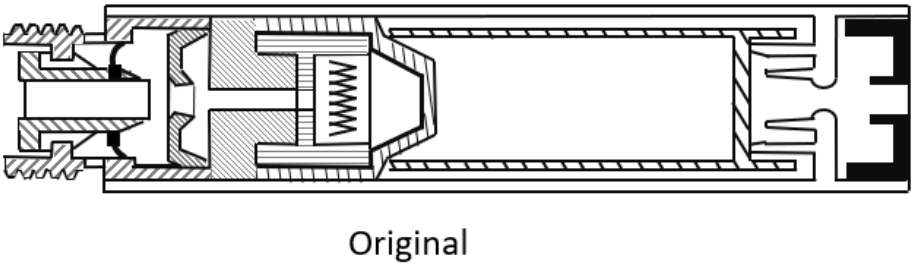
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the regions where the vibrating diaphragms were into a closed concave region (similar to the concave shape of the blocking plate 8), which can serve the same liquid blocking purpose as the concave portions of plate 8. For example, the following images illustrate the difference between Xia '610's original design and an example obvious modification of it:



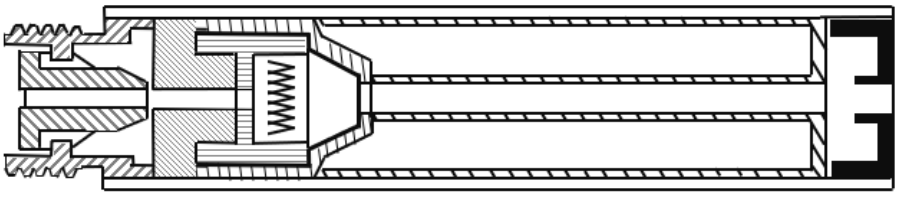
See JX-0632C (Leinsing Opening Rpt.) at ¶ 239.

For example, the following images illustrate the difference between Xia '610's original design and an example obvious modification of it:



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[redacted]



Modified

See JX-0632C (Leinsing Opening Rpt.) at ¶ 247.

Mr. Leinsing will opine that this modification would have had predictable results, and a POSITA making it would have had a reasonable expectation of success. For example, this modification is the result of a slight difference in the physical location of inlet holes that does not introduce any uncertainties as to the functionality of the overall device. For example, it was known in the art to use apertures at the ends of cartridges, such as disclosed in numerous references including Wang '554 and Fang '044 and Smoke Fifty-One Duo, so a POSITA would have understood that this was a viable and predictable way to design the device. *See, e.g.,* JX-0632C (Leinsing Opening Rpt.) at ¶ 240.

The evidence will also show that Xia '610 in combination with Wang '554 and/or Fang '044 and/or Smoke Fifty-One Duo renders obvious this limitation. For example, as discussed above, the evidence will show that a POSITA would have been motivated to combine these references, and as discussed below, each of these references discloses this limitation.

1. Wang '554 in view of Xia '610 and Fang '044 and Smoke Fifty-One Duo – '864 Patent, Claim 1[b]

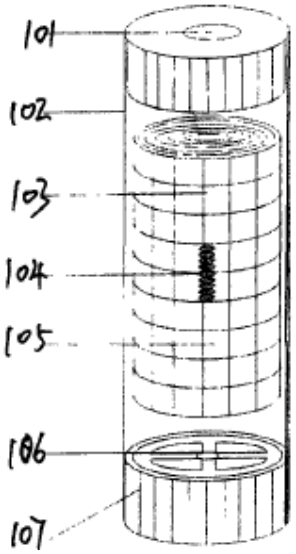
The evidence will show that Wang '554 discloses or renders obvious, alone or in combination with Xia '610 and Fang '044 and Smoke Fifty-One Duo this limitation. *See* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 657-661; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 267-295; RX-0005 (Wang '554); JX-0596 (Xia '610); JX-0595 (Fang '044); RX-0130C (Declaration

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of Yardimici). NJOY and its expert do not dispute that this limitation is met by Wang '554. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 757-770; CX-2726C (Vallee Reb. Rpt.) at Appx. A-2, ¶ 143.

For example, as shown in Figure 3, Wang '554's cartridge has a first end and a second end that is opposite the first end as well as a first aperture on the first end and a second aperture on the second end of the housing:



See RX-0005 (Wang '554) at Fig. 3; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 659.

For example, the portion of Wang '554's cigarette holder that is near reference number 107 serves as a "first end" as claimed, and the portion of the cigarette holder that is near reference number 101 serves as a "second end" as claimed at least as NJOY interprets the claims and the extent of the "ends" (including the general area, rather than, e.g., the furthest surface, *see* n. 26).

Wang '554 discloses an "air inlet 106" that serves as a "first aperture" as claimed. Wang '554 describes: "The air inlet 106 of the cigarette holder is placed in the middle or on a side of the

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input end 107 of the cigarette holder." RX-0005 (Wang '554) at RX-0005.7; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 660.

Wang '554 discloses an "air outlet 101" that serves as a "second aperture" as claimed. For example, Wang '554 describes: "The air outlet 101 of the cigarette holder is placed at the other end of the air inlet 106 of the cigarette holder, and is a channel for finally sucking out smoke. The air outlet 101 of the cigarette holder maybe integrated with the cigarette holder shell 102 or may be separated." RX-0005 (Wang '554) at RX-0005.8; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 661.

For example, Wang '554 discloses "[t]he cigarette holder shell 102 is a hollow cylinder with one end being one end of the air inlet 106, … The other end is one end of the air outlet 101, and is used for being held by a smoker together with an outer side of the shell 102, just like holding a filter tip of the common cigarette." RX-0005 (Wang '554) at RX-0005.7; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 273. Wang '554 further discloses "[t]he air inlet 106 of the cigarette holder is placed in the middle or on a side of the input end 107 of the cigarette holder, and under the state that the input end 107 of the cigarette holder and the output end 109 of the cigarette rod are connected together, the air inlet 106 of the cigarette holder and the air outlet 108 of the cigarette rod are also naturally in butt joint together." RX-0005 (Wang '554) at RX-0005.7; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 273. Wang '554 additionally discloses '[t]he air outlet 101 of the cigarette holder is placed at the other end of the air inlet 106 of the cigarette holder" where "the air outlet 101 of the cigarette holder may be integrated with the cigarette holder shell 102 or may be separated." RX-0005 (Wang '554) at RX-0005.8; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 273.

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The identified first and second apertures are also part of the claimed "housing." For example, the asserted patents identify that the claimed "housing" can comprise end caps. For example, the specification states that "housing 120 may comprise the cartridge wall and a single end-cap" and that "[t]he first end 122 and the second end 124 may be or include end caps." *See* '881 Patent at 3:58-59, 5:32-33; *see also* JX-0635 (Leinsing Opening Rpt., Appx. C) at ¶ 260. Further, the Asserted Patents disclose, "the first and second ends 206 and 208 can be removeable caps[.]" *See* '881 Patent at 6:4-5; *see also* JX-0635 (Leinsing Opening Rpt., Appx. C) at ¶ 260.

To the extent that it is determined that the first aperture must be closer to the end than what is disclosed, Mr. Leinsing will opine that a POSITA would be motivated to swap the threaded conductors in Wang '554 so that the threaded male conductor is on the cartridge and a threaded female conductor is on the battery section. S*ee* JX-0632C (Leinsing Opening Rpt.) at ¶ 275. This is because there is benefit to doing so, there is a motivation to combine Wang '554 with Xia '610 as set forth above in Section IV.E.3.xii.a, and Xia '610 discloses this. For example, the evidence will show that the use of male or female threaded conductors are simply design choices and well known in the art. *See e.g.,* Xia '610 (showing that the cartridge uses a male conductor and the battery section uses a female conductor); Han '364 (showing that the cartridge uses a male conductor and the battery section uses a female conductor); NPRO Style (showing that the cartridge uses a male conductor and the battery section uses a female conductor); Cigarette Electronique (showing that the cartridge uses a female conductor and the battery section uses a male conductor); s*ee also* JX-0632C (Leinsing Opening Rpt.) at ¶ 275. There is also motivation to use a male threaded connector on the cartridge and female on the battery portion. The battery portion could have live contacts and female connector on battery portion provides for more protection. Male contacts on cartridge allows for smoother connection surface so that when many

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cartridges are held in your pocket they do not collect dust on the inside of the female connector. By contrast, the battery portion is unlikely to be in one's pocket without an attached cartridge portion, so benefits less from a male connector. The charger for connecting to a female connector on the battery portion would be able to have a circular protected groove that is more difficult to short against the center contact. Further, Mr. Leinsing will opine that a POSITA would have been motivated to look to a prior art reference or system like NPRO Style to modify Wang '554. For example, NPRO Style uses a male threaded conductor for the cartridge and a female threaded conductor for the battery section. A POSITA would have been motivated to use a male conductor on the cartridge and a female conductor on the battery portion, as used by NPRO Style, on the Wang '554 for the reasons discussed above. For similar reasons, a POSITA would have also been motivated and understood to modify the Wang '554 cartridge with any of the male conductor disclosed in Xia '610's cartridge, the male conductor of the atomizer in the Cigarette Electronique device, and screw 2 of Han '364.

2. Fang '044 in view of Xia '610 and Wang '554 and Smoke Fifty-One Duo – '864 Patent, Claim 1[b]

The evidence will show that Fang '044 discloses or renders obvious, alone or in combination with Xia '610 and Wang '554 and Smoke Fifty-One Duo this limitation. *See* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 662-664; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 296-321; JX-0595 (Fang '044); JX-0596 (Xia '610); RX-0005 (Wang '554); RX-0130C (Declaration of Yardimici).

For example, the evidence will show that Fang '044 discloses a smoking channel 10 that has an outlet aperture at one end, and another aperture in contact with the circuit board switch and sensor 11, and illustrates these in figure 1. Fang '044 discloses "a gas pipe 8 is nested in the center of the evaporation oil storage sleeve 7, the gas pipe 8 is connected with a gas pipe support 9, the

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gas pipe 8 and the gas pipe support 9 form a smoking channel 10 with the center of the sucker 1 being separated and closed from the oil conservator 7, and the other end of the smoke sucking pipe 8 is communicated with the nicotine oil fuming device 5." JX-0595 (Fang '044) at JX-0595.5; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 311. Fang '044 explains that the airflow from the smoking channel extends all the way to the sensor 11: "When the utility model is in use, the smoking channel 10 generates a negative pressure in the atomizer control switch 4 by a suction force of a user, the silicon film-coated tablet 11 bulges in the support 13 towards the direction of the switch circuit board 12." JX-0595 (Fang '044) at JX-0595.5-6; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 311. This demonstrates that the hole illustrated at the top of Figure 1 is an aperture that allows airflow through it, and that the airflow continues through the cartridge portion. Therefore, in making a split between the power portion and the cartridge portion described above with respect to '864 Patent claim 1[pre], the airflow passageway would terminate in a first aperture on the first end.

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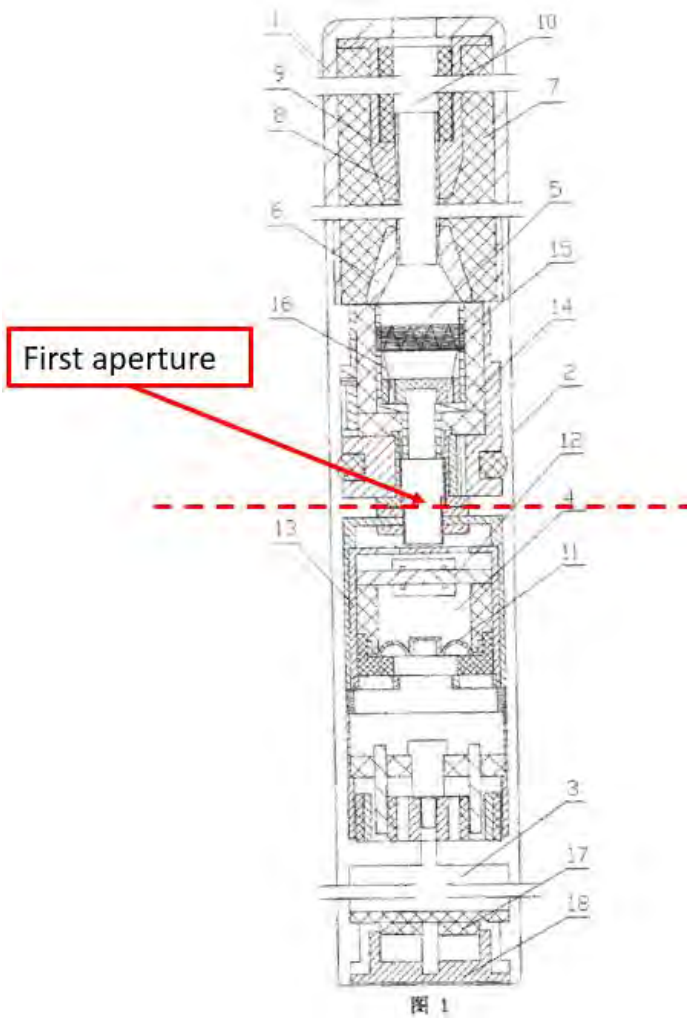


图 1

See JX-0632C (Leinsing Opening Rpt.) at ¶ 311.

In modifying Fang '044 to have a split as described above, a POSITA would be motivated to make a threaded male conductor on the cartridge and a threaded female conductor is on the battery section. This is because there is benefit to doing so, there is motivation to combine with Xia '610 as set forth above in Section IV.E.3.xii.a, and Xia '610 discloses this. The use of male or female threaded conductors are simply design choices and well known in the art. *See e.g.,* Xia '610 (showing that the cartridge uses a male conductor and the battery section uses a female conductor); Han '360 (showing that the cartridge uses a male conductor and the battery section uses a female

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conductor); NPRO Style (showing that the cartridge uses a male conductor and the battery section uses a female conductor); Cigarette Electronique (showing that the cartridge uses a female conductor and the battery section uses a male conductor); *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 312. Mr. Leinsing will opine there is a motivation to use a male threaded connector on the cartridge and female on the battery portion. *See* JX-0632C (Leinsing Opening Rpt.) at ¶ 312. The battery portion could have live contacts and female connector on battery portion provides for more protection. Male contacts on cartridge allows for smoother connection surface so that when many cartridges are held in your pocket they do not collect dust on the inside of the female connector. The charger for connecting to a female connector on the battery portion would be able to have a circular protected groove that is more difficult to short against the center contact. Further, a POSITA would have been motivated to look to a prior art reference like Xia '610 or system like NPRO Style to create threaded connectors between the cartridge and the battery portion. For example, NPRO Style and Xia '610 each use a male threaded conductor for the cartridge and a female threaded conductor for the battery section. A POSITA would have been motivated to use a male conductor on the cartridge and a female conductor on the battery portion, as used by NPRO Style and Xia '610, on Fang '044 for the reasons discussed above.

For example, as explained above, in making Fang '044 a cartridge configuration, a POSITA would make the first end of the cartridge where the shell 2 extends inward in the device illustrated, which would have a first aperture running through the middle. And the second end is illustrated in the top of figure 1, and includes the outlet hole as a second aperture as explained.

The identified first and second apertures are also part of the claimed "housing" at least as NJOY interprets the claims and the "housing" (including that internal components can serve as part of the claimed housing, *see* n. 27). Therefore, even if the identified apertures are considered

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to be apertures in internal components, these apertures would satisfy this limitation under NJOY's interpretation.

3. Wang '927 in view of Wang '554 and NPRO Style – '864 Patent, Claim 1[b]

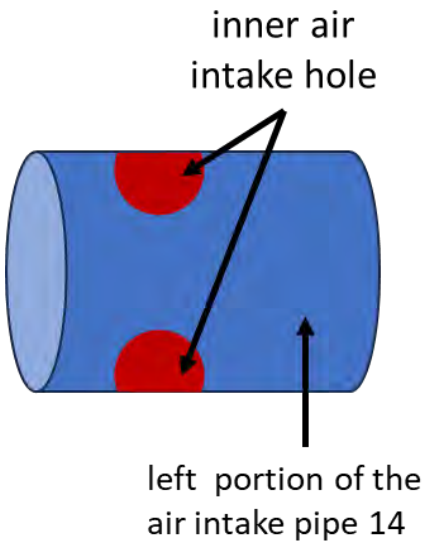
The evidence will show that Wang '927 discloses or renders obvious, alone or in combination with Wang '554 and NPRO Style this limitation. *See* JX-0634 (Leinsing Opening Rpt., Appx. B) at ¶¶ 251-254; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 323-356; JX-0594 (Wang '927); RX-0005 (Wang '554); RX-0080 (Photos of NPRO Style); RPX-0008 (Physical sample of NPRO Style); JX-0405 (CT Scans of NPRO Style); RX-0094 (Raw CT Scan of NPRO Style).

For example, the evidence will show that Wang '927 discloses having a first aperture and a first end of the housing at least as NJOY interprets the claims and the "housing" (including that internal components can serve as part of the claimed housing, *see* n. 27). The identified aperture is at the "end" of the housing at least as NJOY interprets the claims and the extent of the "ends" of the device (including a general area of the cartridge, rather than e.g., a furthest surface, *see* n. 26). JX-0594 (Wang '927) at Fig. 1, JX-0594.1-2, 4; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 336. For example, Wang '927 discloses the inner air intake hole 16 "arranged at a front end of the air intake pipe for air intake." *Id*. at JX-0594.3 ("An air intake hole is opened at a position, where the air intake switch is installed, of the casing; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 336. The air intake switch consists of an air intake pipe and a switch. A small hole is arranged at a front end of the air intake pipe for air intake, and the switch is made of memory alloys."). Wang '927 also discloses the hollow air intake pipe 14 including the air intake channel 15. Air coming in through the inner air intake hole converge at an opening of the air intake channel towards the left side of the air intake pipe.

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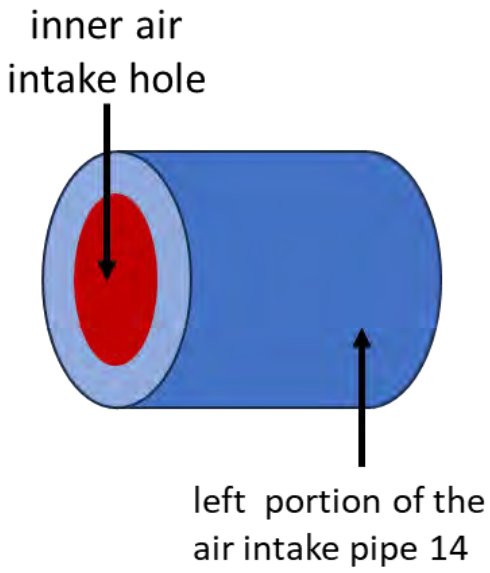
To the extent the inner air intake hole and the opening of the air intake are determined not to discloses a first aperture on or proximate the first end, Mr. Leinsing will opine that a POSITA would be motivated to modify the inner air intake hole as disclosed in Fig. 1 of Wang '927 (illustrated in Fig. A – Wang '927 below) so that an inner air intake hole is in the center on the left end of the air intake pipe (illustrated in Fig. B – Wang '927 below). *See* JX-0632C (Leinsing Opening Rpt.) at ¶ 337. A POSITA would know that the air intake hole can be on the side of the air intake pipe as shown in Fig. 1 of Wang '927 or in the middle of the left end of the air intake pipe. In either configuration, ambient air from outside the e-cigarette gets into the e-cigarette to bring vaporized tobacco juice to the user. It is beneficial to use the existing opening on the end of the air intake pipe instead of welding on a plug at the end of the pipe to seal the end and then drilling holes on the sides because it is more expensive to weld and add side holes to screw machine parts. A POSITA would also be motivated to add a groove on the end of the battery center post to allow air coming in from the outer air intake hole 5 to flow to the inner air intake hole when the tail end of the e-cigarette is connected to the front end of the e-cigarette.



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See Fig. A – Wang '927 (Illustration of the left portion of the air intake pipe 14 and inner air intake hole 16 from Fig. 1 of Wang '927); *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 337.



See Fig. B – Wang '927 (Illustration of the air intake pipe 14 with a modified inner air intake hole); *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 337.

Further, it was well known in the art to have the opening on the end to allow air flowing through the housing. For example, Wang '554 discloses a first aperture on and close to the first end. It also discloses that air intake holes can be either "in the middle or on a side of the input end [] of the cigarette holder." RX-0005 (Wang '554) at RX-0005.RX-0005.7-8 ("The air inlet 106 of the cigarette holder is placed in the middle or on a side of the input end 107 of the cigarette holder, and under the state that the input end 107 of the cigarette holder and the output end 109 of the cigarette rod are connected together, the air inlet 106 of the cigarette holder and the air outlet 108 of the cigarette rod are also naturally in butt joint together."); *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 338.

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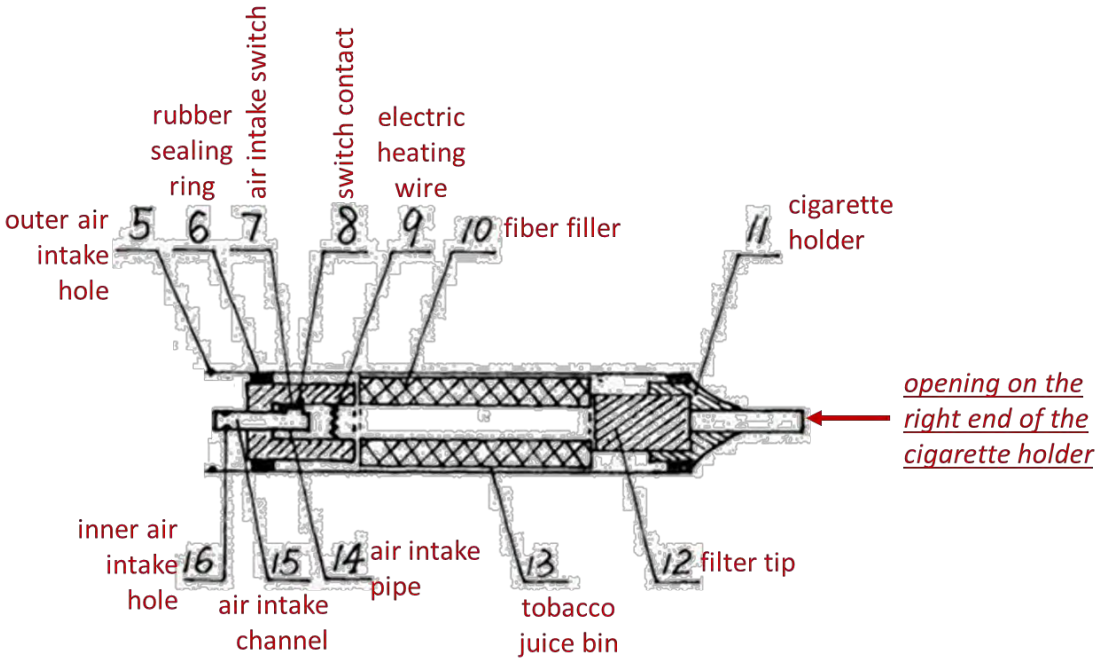
Further, a POSITA would be motivated to look to a reference like Wang '554 or a prior art system like [redacted]. Specifically, leaving a hole on the end instead of plugging the end and drilling a side hole across the cylindrical air intake pipe can save cost because it is more expensive to add side holes to screw machine parts, especially those with curved surfaces than grinding or machining a groove on the end of the battery center post or pipe. A groove can also be added to the end of multiple posts or pipes at one time with an end mill on a milling machine.

Therefore, Mr. Leinsing will opine that a POSITA would be motivated based on his or her own knowledge or look to prior art references and systems like Wang '554 or NPRO Style to modify Wang '927's [redacted]

Wang '927 also discloses having a second aperture and a second end of the housing at least as NJOY interprets the claims and the "housing" and the extent of the "ends" of the device. For example, as shown in Fig. 1, Wang '927 discloses a cigarette holder 11 connected to the casing 18 through threads. JX-0594 (Wang '927) at Fig. 1 and JX-0594.3. The cigarette holder 11 includes an opening in the housing to allow vaporized air to flow to the user when the user draws from the cigarette holder. JX-0594 (Wang '927) at JX-0594.5; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 341.

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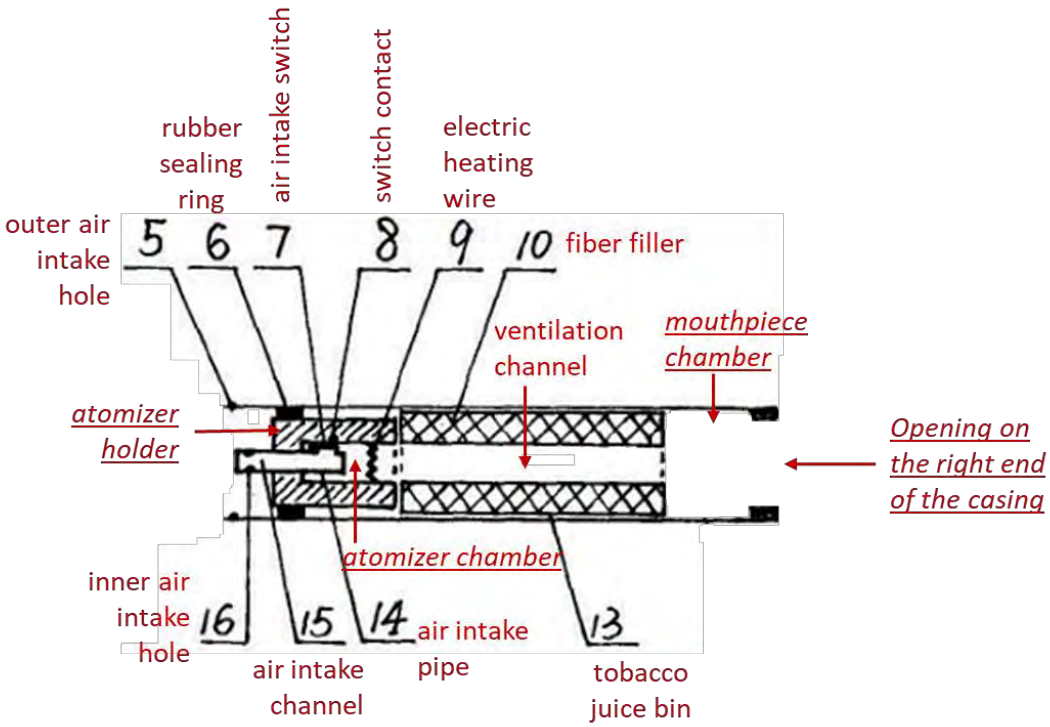
[redacted]



See JX-0594 (Wang '927) at Fig. 1 (cropped to only show the tail end) (annotated in red); *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 341.

Further, to the extent NJOY argues that the opening on the cigarette holder cannot be the second aperture, for example, because it allegedly is part of a mouthpiece, Wang '927 also discloses an alternative "second aperture" at least as NJOY interprets the claims (e.g., as allowing an internal aperture to be a claimed "aperture," including by removing the mouthpiece, such as with its infringement allegations with respect to JUUL1). For example, the right end of the casing includes an opening in the casing so that the cigarette holder 11 (the mouthpiece) can be screwed into the casing. *Id*. at Fig. 1 and JX-0594.3; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 342. This opening can serve as the claimed second aperture as well, if it is permissible to remove a cartridge's mouthpiece before performing the infringement analysis, for example as NJOY and its expert have done with respect to the JUUL1 Pods.

[redacted]



See JX-0594 (Wang '927) at Fig. 1 (cropped to only show the tail end with the cigarette holder and the filter tip installed on it removed) (annotated in red); *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 342.

NJOY asserts that "under JLI's proposed modification, the intake hole would be located right against the electrode 17 (illustrated in Fig. 1), resulting in an obstructed airflow into the new intake hole and the rest of the cartridge." CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 321. However, when moving the air intake hole to the center of the air intake pipe on the end, a POSITA would be motivated to add a groove on the end of the battery center post to allow air coming in from the outer air intake hole 5 to flow to the inner air intake hole when the tail end of the e-cigarette is connected to the front end of the e-cigarette. JX-0632C (Leinsing Opening Rpt.) at ¶ 343.

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[redacted]

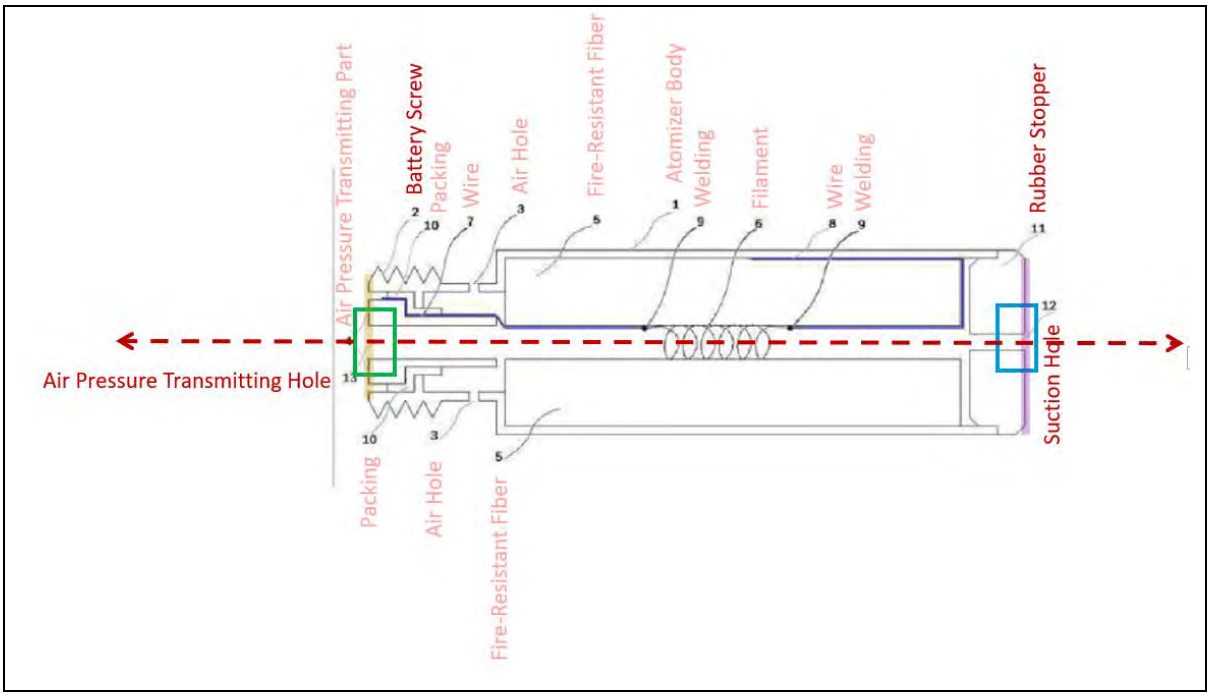
4. Han ’364 in view of Fang ’044 and NPRO Style – ’864 Patent, Claim 1[b]

The evidence will show that Han ’364 in view of Fang ’044 and NPRO Style discloses or renders obvious this limitation. *See* JX-0635 (Leinsing Opening Rpt., Appx. C) at ¶¶ 256-261; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 357-403; JX-0631 (Han ’364 certified English Translation) ; JX-0595 (Fang ‘044); RX-0080 (Photos of NPRO Style); RPX-0008 (NJOY NPRO Style Kit).

For example, Han ’364 discusses a housing with first end having a first aperture, and a second end having a second aperture at least as NJOY interprets the claims and the “housing” (including that internal components can serve as part of the claimed housing, *see* n. 27). The identified aperture is at the “end” of the housing at least as NJOY interprets the claims and the extent of the “ends” of the device (including a general area of the cartridge, rather than e.g., a furthest surface, *see* n. 26). For example, Han ’364 discloses a cylindrical cartridge including two ends. *See* JX-0631 (Han ’364 certified English Translation) at [0003], [0009], [0013]; Claim 3; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 365. Additionally, as shown below in Han ’364, FIG. 1, Han ’364 discloses a first end (annotated in yellow); a second end (annotated in purple); a first aperture on the first end (annotated in green); and a second aperture on the second end (annotated in blue):

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[redacted]

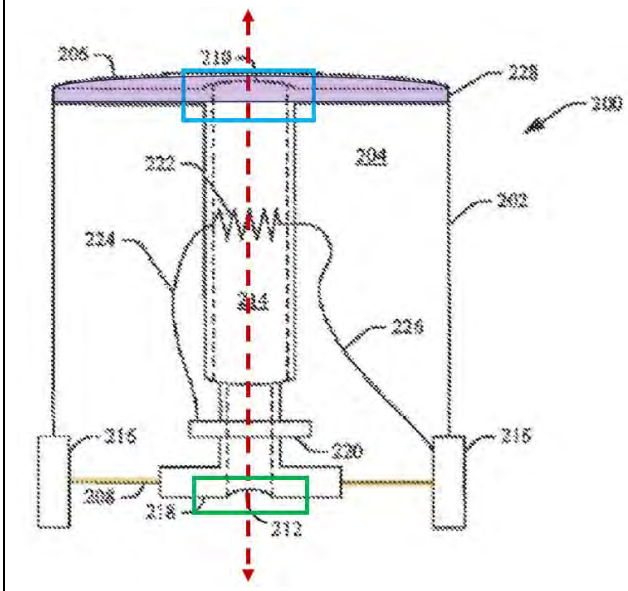
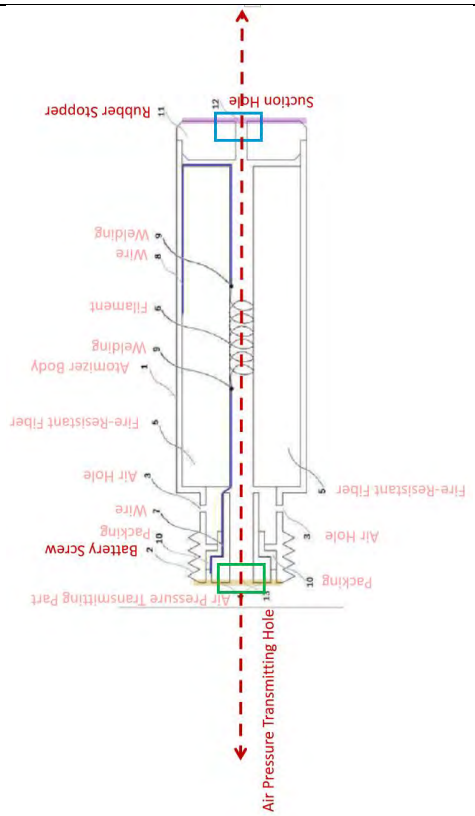


See also id. at FIGs. 8-9.

This embodiment is almost identical to the cartridge shown in FIG. 2 of the Asserted Patents (*see id.* at FIG. 1 (annotated); *see also* '881 Patent at FIG. 2 (annotated):

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[redacted]

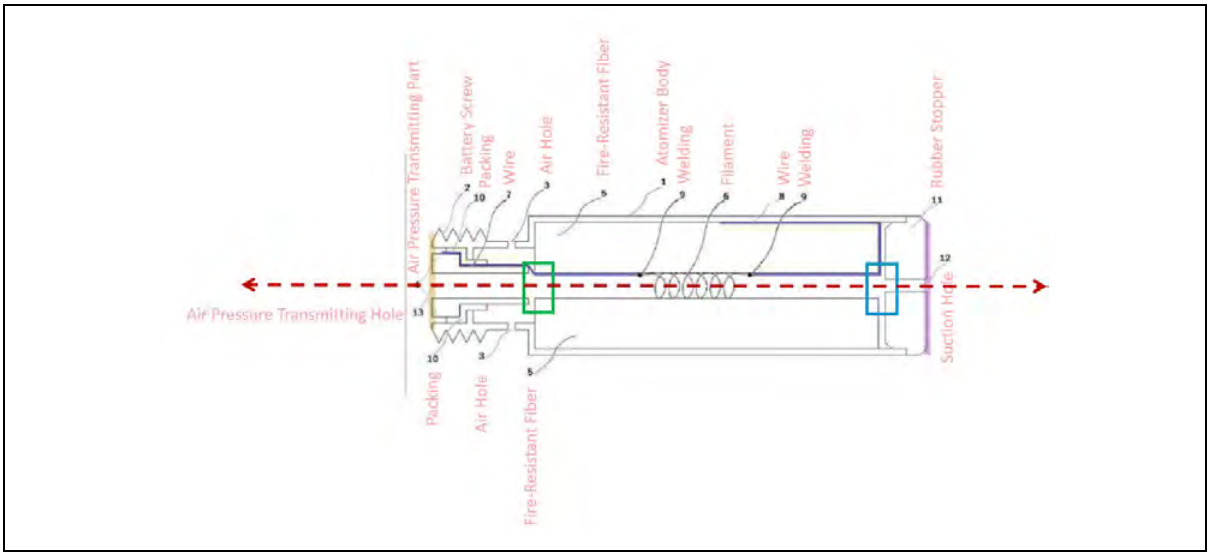
’881 Patent, FIG. 2 (annotated)	Han ’364, FIG. 1 (annotated)
	

The identified first and second apertures are also part of the claimed “housing.” For example, the asserted patents explain that the housing can comprise end caps. For example, the specification states that “housing 120 may comprise the cartridge wall and a single end-cap” and that “[t]he first end 122 and the second end 124 may be or include end caps.” *See* ’881 Patent at 3:58-59, 5:32-33; *see also* JX-0635 (Leinsing Opening Rpt., Appx. C) at ¶ 260. Further, the Asserted Patents disclose, “the first and second ends 206 and 208 can be removeable caps[.]” *See* ’881 Patent at 6:4-5; *see also* JX-0635 (Leinsing Opening Rpt., Appx. C) at ¶ 260. Thus, the rubber stopper 11 is part of the housing, and the apertures therein are apertures in the housing.

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[redacted]

Additionally and alternatively, Han '364 discloses a first end (annotated in yellow) and a second end (annotated in purple) at least as NJOY interprets the claims and the "housing" (including that internal components can serve as part of the claimed housing, *see* n. 27). The identified aperture is at the "end" of the housing at least as NJOY interprets the claims and the extent of the "ends" of the device (including a general area of the cartridge, rather than e.g., a furthest surface, *see* n. 26). If it is permissible to ignore part of a cartridge in performing the infringement analysis, for example as NJOY and its expert have done with respect to the JUUL1 Pods, the first aperture can be the area annotated below in green, while the second aperture can be the area annotated below in blue:



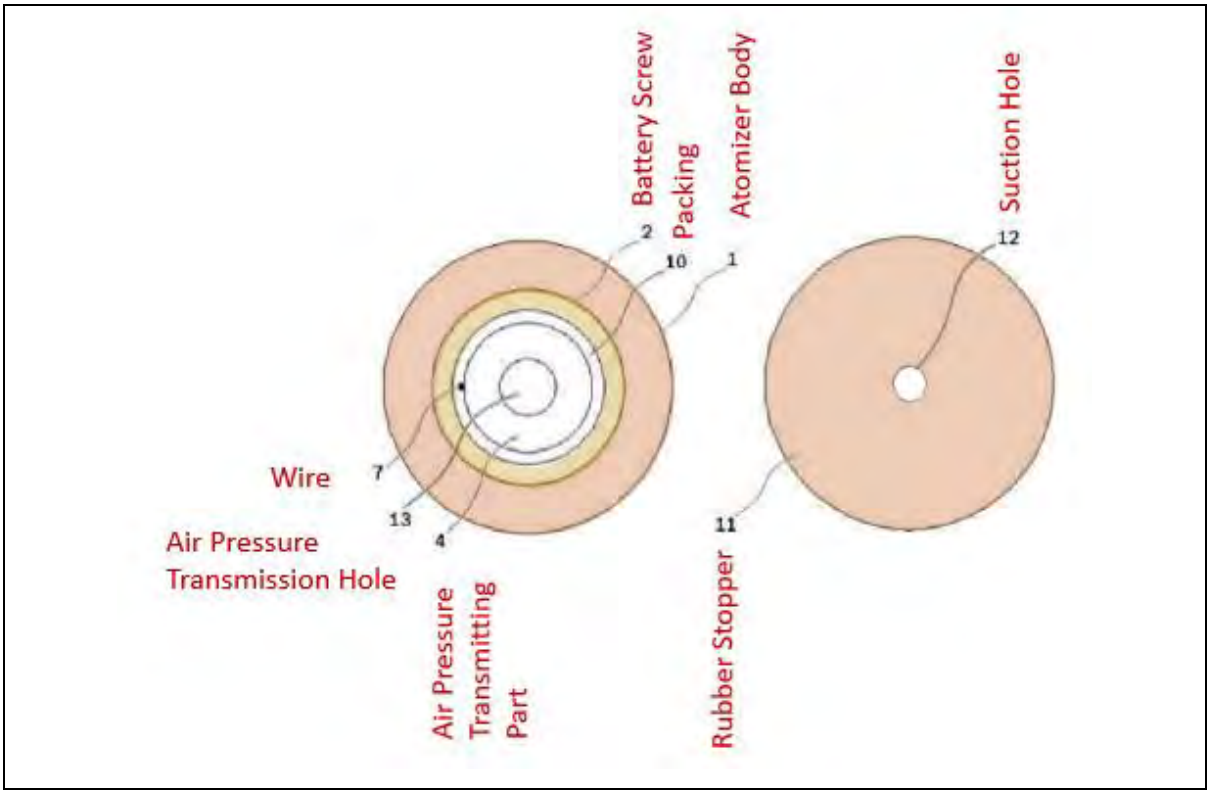
See JX-0631 (Han '364 certified English Translation) at FIG. 1 (annotated); *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 367.

The identified first and second apertures are also part of the claimed "housing" at least as NJOY interprets the claims and the "housing" (including that internal components can serve as part of the claimed housing, see n. 27). For example, Fig. 3 is a top-down view of the cartridge disclosed in FIG. 1 of Han '364, below, with orange to denote atomizer body 1 and the rubber

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[redacted]

stopper 11, and yellow to denote the battery screw 2 (all of which collectively comprise the housing of the cartridge):



See JX-0632C (Leinsing Opening Rpt.) at ¶ 369.

Further, the first aperture is "proximate" the first end in that the first aperture is close to the portion of the cartridge that comprises the first end, and the second aperture is close to the portion of the cartridge that comprises the second end. *See* JX-0635 (Leinsing Opening Rpt., Appx. C) at ¶ 260. Further, the first aperture is closer to the first end than the second end in relative positioning, and the second aperture is closer to the second end than the first end in relative positioning. *Id.* Finally, the first aperture is closer to the first end than the second aperture is to the first end, and the second aperture is closer to the second end than the first aperture is to the second end. *Id.*

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[redacted]

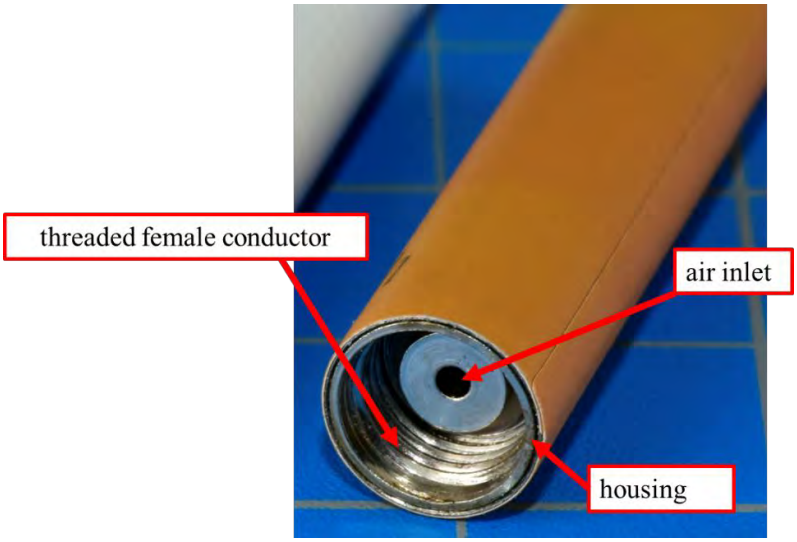
5. Red Dragon in view of Fang '044 and Wang '927 – '864 Patent, Claim 1[b]

The evidence will show that Red Dragon in view of Fang '044 and Wang '927 discloses or renders obvious this limitation. *See* JX-0638 (Leinsing Opening Rpt., Appx. E) at ¶¶ 253-257; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 461-505; RX-0074 (Photos of Red Dragon Kit # 1); RX-0076 (Photos of Red Dragon Kit # 2); RX-1309 (Red Dragon Product 3 Piece Kit (Evans 2)); RX-0077 (CT scans of Red Dragon Kit #2); RX-0098 ([vg-project] Red Dragon - Cartridge_Pen Package.zip (Native)); RX-0099 ([vg-project] Red Dragon - Pen.zip (Native)); RPX-0009 (Red Dragon 3-Piece Kit); RPX-0010 (Red Dragon 3-Piece Kit (Sealed); JX-0595 (Fang '044); JX-0594 (Wang '927). NJOY and its expert do not dispute that the Red Dragon discloses or renders obvious this claim limitation. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 916-937; CX-2726C (Vallee Reb. Rpt.) at Appx. E, ¶ 114.

Red Dragon discloses a first end and a second end of the housing as claimed, at least as NJOY interprets the claims and the "housing" (including that internal components can serve as part of the claimed housing, see n. 27). Red Dragon also discloses first and second apertures at the "end" of the housing at least as NJOY interprets the claims and the extent of the "ends" of the device (including a general area of the cartridge, rather than e.g., a furthest surface, see n. 26). At least as NJOY interprets the claims, the first end of the housing includes a female threaded conductor portion of the cartomizer housing with an air inlet hole proximate the first end. *See, e.g.,* RX-0074 (Photos of Red Dragon Kit #1) at RX-0074.22, 26, 45; RX-0077 at RX-0077.22 ; *see also* JX-0638C (Leinsing Opening Rpt., Appx. E) at ¶¶ 253-257. For example, the air inlet is close to the first end, and is closer to the first end than the second end in relative positioning.

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[redacted]



See RX-0074 (Photos of Red Dragon Kit #1) at RX-0074.45 (annotated in red) (showing the first end); JX-0632C (Leinsing Opening Rpt.) at ¶ 488. *See also* RX-1126C (Evans 03/11/24 Tr.) at 86:25-88:25.

The second end of the cartomizer includes a plastic end cap white lid having an air exit hole on (*i.e.,* at) the second end. *Id.* On the second end of the cartomizer is a white lid having an air exit hole in the center. The air exit hole is on the second end, and is therefore also proximate the second end.



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[redacted]

See RX-0074 (Photos of Red Dragon Kit #1) at RX-0074.26 (annotated in red) (showing the second end); JX-0632C (Leinsing Opening Rpt.) at ¶ 490. *See also* RX-1126C (Evans 03/11/24 Tr.) at 86:25-88:25.

The identified first and second apertures are also part of the claimed "housing" at least as NJOY interprets the claims and the "housing." For example, the asserted patents explain that the housing can comprise end caps. For example, the specification states that "housing 120 may comprise the cartridge wall and a single end-cap" and that "[t]he first end 122 and the second end 124 may be or include end caps." *See* '881 Patent at 3:58-59, 5:32-33; *see also* JX-0635 (Leinsing Opening Rpt., Appx. C) at ¶ 260. Further, the Asserted Patents disclose, "the first and second ends 206 and 208 can be removeable caps[.]" *See* '881 Patent at 6:4-5; *see also* JX-0635 (Leinsing Opening Rpt., Appx. C) at ¶ 260. Thus, plastic cap is part of the housing, and the apertures therein are apertures in the housing.

6. Smoke Fifty-One Duo in view of Fang '044 and Wang '927 – '864 Patent, Claim 1[b]

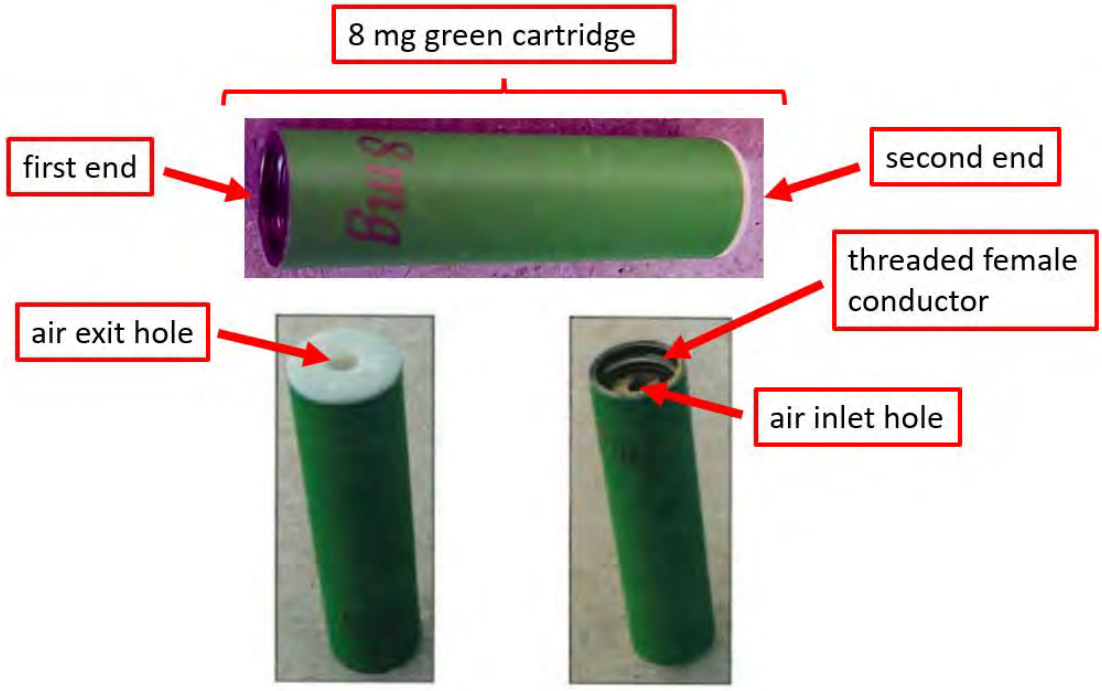
The evidence will show that Smoke Fifty-One Duo in view of Fang '044 and Wang '927 discloses or renders obvious this limitation. *See* JX-0636C (Leinsing Opening Rpt., Appx. D) at ¶¶ 242-246; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 413-460; RX-0130C (Declaration of Yardimici); JX-0595 (Fang '044); JX-0594 (Wang '927). NJOY and its expert do not dispute that Smoke Fifty-One Duo discloses or renders obvious this claim limitation. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 897-916; CX-2726C (Vallee Reb. Rpt.) at Appx. D, ¶ 71.

Smoke Fifty-One Duo discloses a housing having a first and second ends at least as NJOY interprets the claims and the "housing" (including that internal components can serve as part of the claimed housing, see n. 27). Smoke Fifty-One Duo also discloses first and second apertures at

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the ends of the housing at least as NJOY interprets the claims and the extent of the "ends" of the device (including a general area of the cartridge, rather than e.g., a furthest surface, see n. 26). For example, at least as NJOY interprets the claims, the first end of the housing includes a female threaded conductor portion of the cartridge housing with an air inlet hole proximate the first end. *See, e.g.,* RX-0130C (Yardimici Declaration) at RX-0130C.16 (annotated in red); RX-0129C (Wang Declaration) at RX-0129C.40 (annotated in red); *see also* JX-0636C (Leinsing Opening Rpt., Appx. D) at ¶¶ 245-246. For example, the air inlet is close to the first end, and is closer to the first end than the second end in relative positioning. The second end of the cartridge includes a plastic end cap having an air exit hole on (*i.e.,* at) the second end. *Id.* The air exit hole is on the second end, and is therefore also proximate the second end.



See JX-0632C (Leinsing Opening Rpt.) at ¶440; RX-0130C (Yardimici Declaration) at RX-0130C.16 (annotated in red); see also RX-0129C (Wang Declaration) at RX-0129C.40 (annotated in red). *See also* RX-1114 (Hillenbrandt 02/13/24 Tr.) at 100:21-25.

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The identified first and second apertures are also part of the claimed "housing" at least as NJOY interprets the claims. For example, the asserted patents explain that the housing can comprise end caps. For example, the specification While the rubber stopper 11 is removeable from the rest of the atomizer body 1, this is consistent with the written description of the Asserted Patents, which states that "housing 120 may comprise the cartridge wall and a single end-cap" and that "[t]he first end 122 and the second end 124 may be or include end caps." See '881 Patent at 3:58-59, 5:32-33; see also JX-0635 (Leinsing Opening Rpt., Appx. C) at ¶ 260. Further, the Asserted Patents disclose, "the first and second ends 206 and 208 can be removeable caps[.]" See '881 Patent at 6:4-5; see also JX-0635 (Leinsing Opening Rpt., Appx. C) at ¶ 260. Thus, the rubber stopper 11 is part of the housing, and the apertures therein are apertures in the housing.

7. NJOY NPRO in view of Wang '554, Fang '044, and Wang '927 – '864 Patent, Claim 1[b]

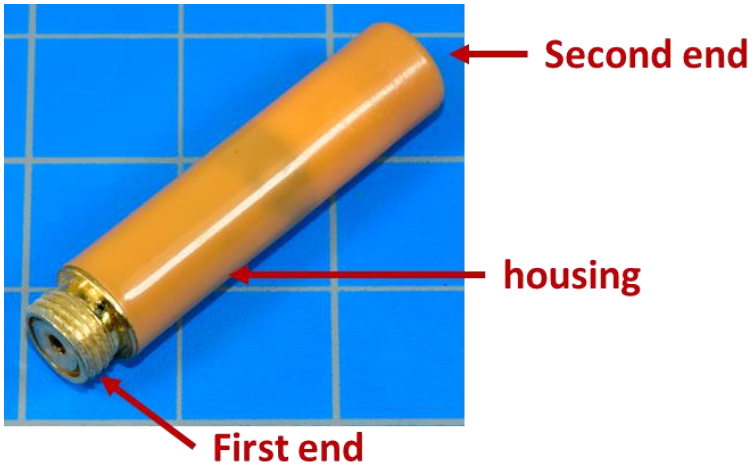
The evidence will show that NJOY NPRO in view of Wang '554, Fang '044, and Wang '927 discloses or renders obvious this limitation. *See* JX-0640C (Leinsing Opening Rpt., Appx. G) at ¶¶ 249-255; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 548-612; RX-0082 (Photos of NJOY NPRO); JX-0404 (CT Scans of NJOY NPRO); RPX-0007 (NJOY NPRO Sample); RX-0095 (CT Scan Raw Data of NJOY NPRO); RX-0005 (Wang '554); JX-0595 (Fang '044).

The evidence will show that the NJOY NPRO includes a housing having a first end and a second end that is opposite the first end, the housing having a first aperture proximate the first end and a second aperture proximate the second end. For example, the NJOY NPRO discloses the housing having an end for the battery connection (i.e., the first end) and an opposite end for a user to draw from (i.e., the second end) at least as NJOY interprets the claims and the "housing" (including that internal components can serve as part of the claimed housing, see n. 27). *See, e.g.,* RX-0082 (Photos of NJOY NPRO); JX-0404 (CT Scans of NJOY NPRO); RPX-0007 (NJOY

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NPRO Sample); RX-0095 (CT Scan Raw Data of NJOY NPRO); *see also* JX-0640C (Leinsing Opening Rpt., Appx. G) at ¶¶ 249-255.



See RX-0082 at RX-0082.60; JX-0632C (Leinsing Opening Rpt.) at ¶561.

The NJOY NPRO also discloses a first aperture, *i.e.*, an opening where air coming into the housing converges at or close to the first end. *See, e.g.,* RX-0082 (Photos of NJOY NPRO); JX-0404 (CT Scans of NJOY NPRO); RPX-0007 (NJOY NPRO Sample); RX-0095 (CT Scan Raw Data of NJOY NPRO); *see also* JX-0640C (Leinsing Invalidity Rpt., Appx. G) at ¶¶ 249-255..



See JX-0404 (NPRO Photos) at JX-0404.16 (annotated in red); JX-0632C (Leinsing Opening Rpt.) at ¶ 563.

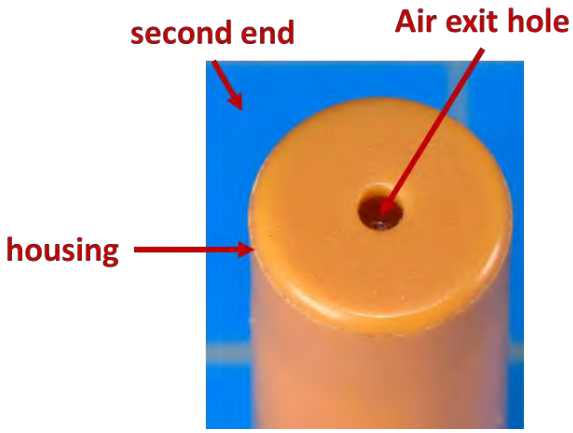
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[redacted]

The identified aperture is at the "end" of the housing at least as NJOY interprets the claims and the extent of the "ends" of the device (including a general area of the cartridge, rather than e.g., a furthest surface, see n. 26). Dr. Vallee has also testified that the claimed first aperture can be in a component that is internal to the cartridge, such as the [redacted], even if there are internal components between the first aperture and the edge of the cartridge. See, e.g., RX-1014C (Vallee 4/11/24 Tr.) at 182:3-13; Ex. 3.

The identified first aperture is "proximate" the first end because it is "close to" the first end, and it is closer to the first end than the second end in relative positioning.

The second end of the cartomizer includes an air exit hole in the housing at or close to the second end. *See, e.g.,* RX-0082 (Photos of NJOY NPRO); JX-0404 (CT Scans of NJOY NPRO); RPX-0007 (NJOY NPRO Sample); RX-0095 (CT Scan Raw Data of NJOY NPRO); *see also* JX-0640C (Leinsing Invalidity Rpt., Appx. G) at ¶¶ 249-255.



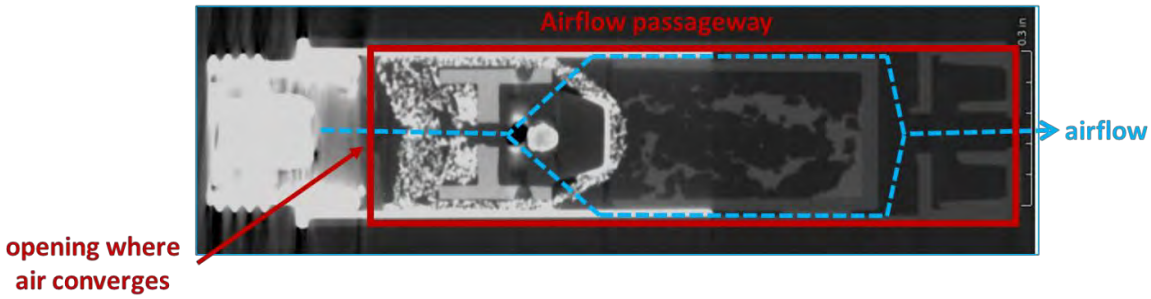
See RX-0082 (Photos of NJOY NPRO) at RX-0082.86 (annotated in red); JX-0632C (Leinsing Opening Rpt.) at ¶564.

The identified second aperture is "proximate" the second end because it is "close to" the second end, and it is closer to the second end than the second end in relative positioning.

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With respect to "the housing having a first aperture proximate the first end", NJOY "disagree[s] that [the opening where air converges] is an aperture on the first end ***of the housing***[.]" *See* JX-0640C (Leinsing Opening Rpt., Appx. G) at ¶ 214. Specifically, Mr. Vallee argues that the alleged opening in the NJOY NPRO "is not an aperture ***in the housing***, and instead…would be a structure ***interior to the housing."*** *Id.* at ¶ 215. However, under NJOY's interpretation of "first end," where it can be a general area of the cartridge, rather than e.g., a furthest surface, *see* n. 26, the identified first aperture is "proximate the first end" of the housing.



See JX-0404 (CT Scans of NJOY NPRO) at JX-0404.11 (annotated in red and blue).

8. NJOY NCIG in view of Wang '554, Fang '044, and Wang '927 – '864 Patent, Claim 1[b]

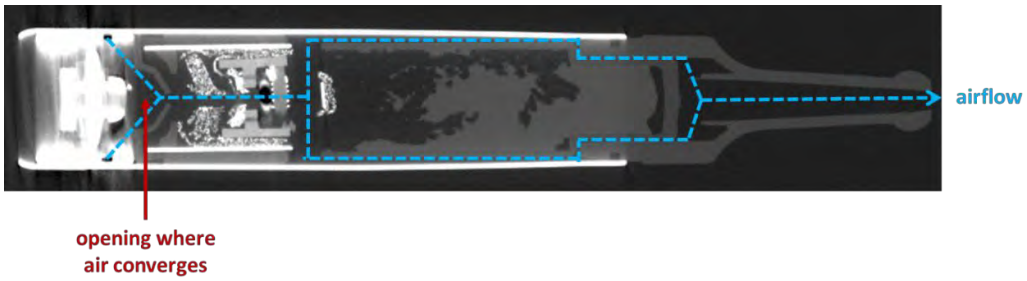
For the same reasons why NJOY NPRO in view of Wang '554, Fang '044, and Wang '927 discloses or renders obvious this limitation, the NJOY NCIG in view of Wang '554, Fang '044, and Wang '927 also discloses or renders obvious this limitation. *See* JX-0632C (Leinsing Invalidity Rpt.) at ¶¶ 584-612; JX-0640C (Leinsing Invalidity Rpt., Appx. G) at ¶¶ 249-255; RPX-0006 (NJOY NCIG Sample); RX-0084 (Photos of NJOY NCIG); JX-0402 (CT Scans of NJOY NCIG); RX-0090 (CT scan of NCIG); RX-0109C (NJOY NCIG User Guide); JX-0482C (NJOY Welcomes to the Tobacco Plus Expo 2009), JX-0482C.3.

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RX-0084 (Photos of NJOY NCIG) at RX-0084.62 (annotated in red).



JX-0402 (CT Scans of NJOY NCIG) at JX-0402.16 (annotated in red and blue).



RX-0084 (Photos of NJOY NCIG) at RX-0084.63 (annotated in red).

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9. Cigarette Electronique – '864 Patent, Claim 1[b]

The evidence will show that Cigarette Electronique discloses or renders obvious this limitation. *See* JX-0639C (Leinsing Opening Rpt., Appx. F) at ¶¶ 276-284; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 506-547; RX-0072 (Photos of Cigarette Electronique); RPX-0011 (Cigarette Electronique Kit). NJOY and its expert do not dispute that this limitation is met by the Cigarette Electronique. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 937-963; CX-2726C (Vallee Reb. Rpt.) at Appx. F, ¶ 167.

For example, the three photos below show the first end of the housing and the second end of the housing, at least as NJOY interprets the claims and the extent of the "ends" of the device (including a general area of the cartridge, rather than e.g., a furthest surface, see n. 26).The photos also show the second aperture proximate the second end of the housing and the first aperture proximate the first end of the housing at least as NJOY interprets the claims and the "housing" (including that internal components can serve as part of the claimed housing, see n. 27).



See RX-0072 at RX-0072.32(annotated in red); RX-0072 at RX-0072.34 (annotated in red); RX-0072 at RX-0072.36; (annotated in red); JX-0639C (Leinsing Opening Rpt., Appx. F) at ¶¶ 300-303.

To the extent that the "end" must be the furthest edge, a POSITA would be motivated to swap the threaded conductors in the Cigarette Electronique Device so that the threaded male

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conductor is on the cartridge and a threaded female conductor is on the battery section. JX-0639C (Leinsing Opening Rpt., Appx. F) at ¶¶ 300-303. This is because there is a benefit to doing so, there is a motivation to combine the Cigarette Electronique with Xia '610 as set forth above in Section IV.E.3.xii.a, and Xia '610 disclsoes this. The use of male or female threaded conductors on the cartridge component are simply design choices and well known in the art. *See* e.g., Xia '610 (showing that the cartridge uses a male conductor and the battery section uses a female conductor); Wang '554 (showing that the cartridge uses a female conductor and the battery section uses a male conductor); Han '364 (showing that the cartridge uses a male conductor and the battery section uses a female conductor); NJOY NPRO Style (showing that the cartridge uses a male conductor and the battery section uses a female conductor). There is also motivation to use a male threaded connector on the cartridge and female on the battery portion. The battery portion could have live contacts and female connector on battery portion provides for more protection. Male contacts on cartridge allows for smoother connection surface so that when many cartridges are held in your pocket they don't collect dust on the inside of the female connector. The charger for connecting to a female connector on the battery portion would be able to have a circular protected groove that is more difficult to short against the center contact. Further, a POSITA would have been motivated to look to a prior art reference or system like NPRO Style to modify Smoke Fifty-One Duo. For example, NPRO Style uses a male threaded conductor for the cartridge and a female threaded conductor for the battery section. A POSITA would have been motivated to use a male conductor on the cartridge and a female conductor on the battery portion, as used by NPRO Style, on the Cigarette Electronique Device for the reasons discussed above. For similar reasons, a POSITA would have also been motivated and understood to modify the Cigarette Electronique Device

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cartridge with any of the male conductor disclosed in Xia '610's cartridge, the male conductor of the atomizer in the Cigarette Electronique device, and screw 2 of Han '364.

Further, a POSITA would have been motivated to look to a prior art reference or system like Xia '610 to modify the Cigarette Electronique Device. JX-0639C (Leinsing Opening Rpt., Appx. F) at ¶¶ 300-303. Xia '610 uses a male threaded conductor for the cartridge and a female threaded conductor for the battery section. A POSITA would have been motivated to use a male conductor on the cartomizer and a female conductor on the battery portion, as used in Xia '610 on the Cigarette Electronique Device.

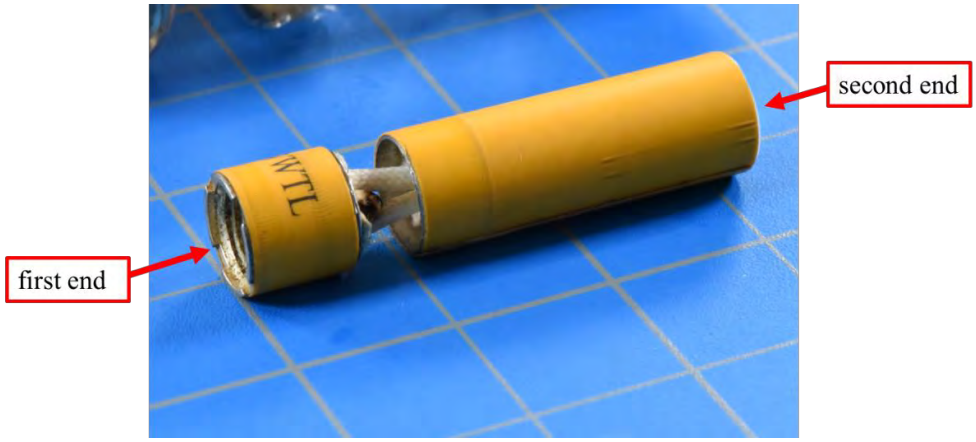
10. Fuma Prototype – '864 Patent, Claim 1[b]

The Evidence will show that the Fuma Prototype discloses this limitation. *See, e.g.,* Leinsing Opening Rpt., Appx. H) at ¶¶ 222-224; NJOY's 13th Supp. ROG Responses; RX-0078 (Photos of Fuma Starter Kit); RX-0079 (CT scans of Fuma Starter Kit).

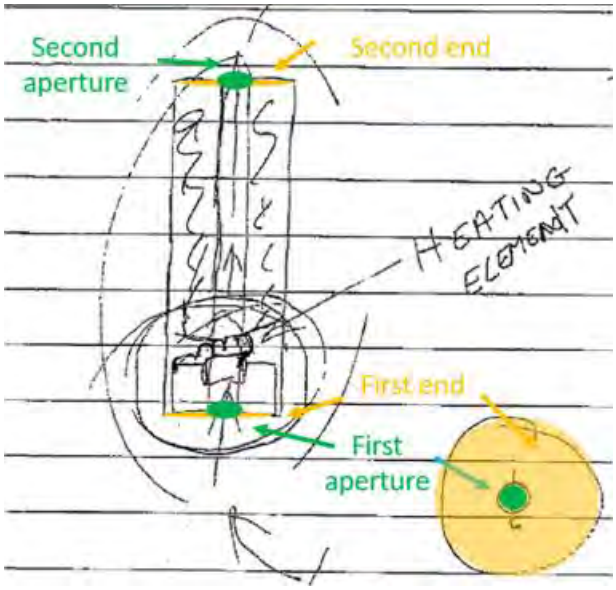
For example, the housing of the Fuma Cartridge includes the first aperture (i.e., the air inlet) proximate the first end (i.e., Fuma Cartridge's screw end) and the second aperture (i.e., the exit hole) proximate the second end (i.e., Fuma Cartridge's cap end) at least as NJOY interprets the claims and the extent of the "ends" (including the general area, rather than, e.g., the furthest surface, *see* n. 26). *See e.g.*, '864 Priority Chart at 3-5. The identified first and second apertures are also part of the claimed "housing" at least as NJOY interprets the claims and the "housing" (including that internal components can serve as part of the claimed housing, *see* n. 27).

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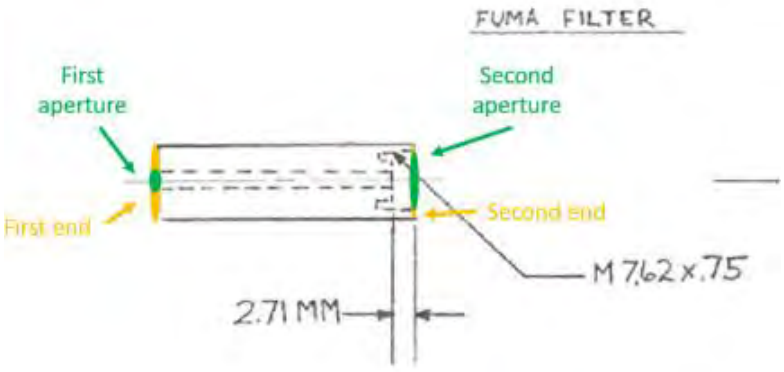
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See RX-0078 (Photos of Fuma Starter Kit) at RX-0078.19 (annotated in red).



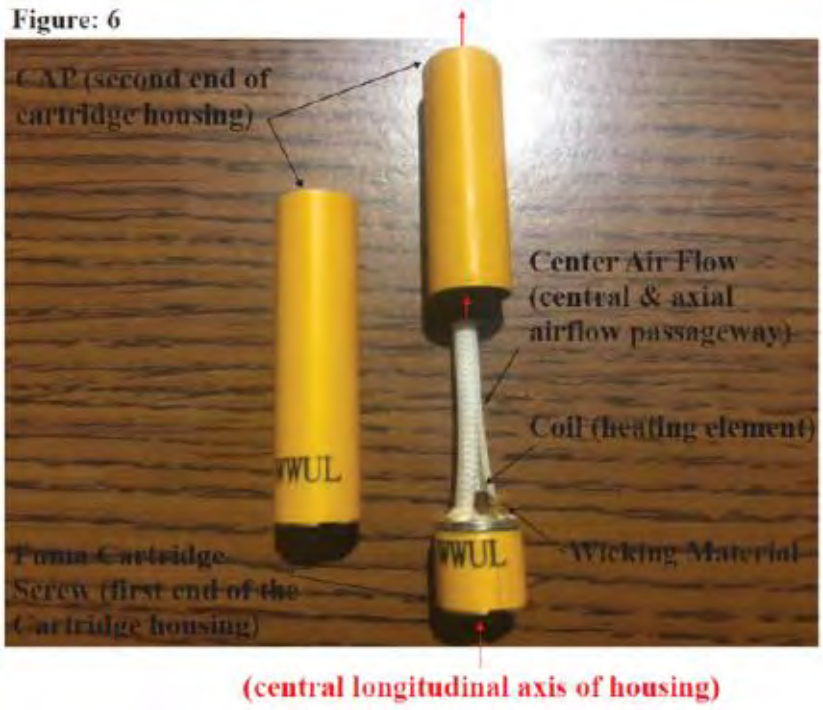
See '864 Priority Chart at 3 (citing CRTP Attachment C).



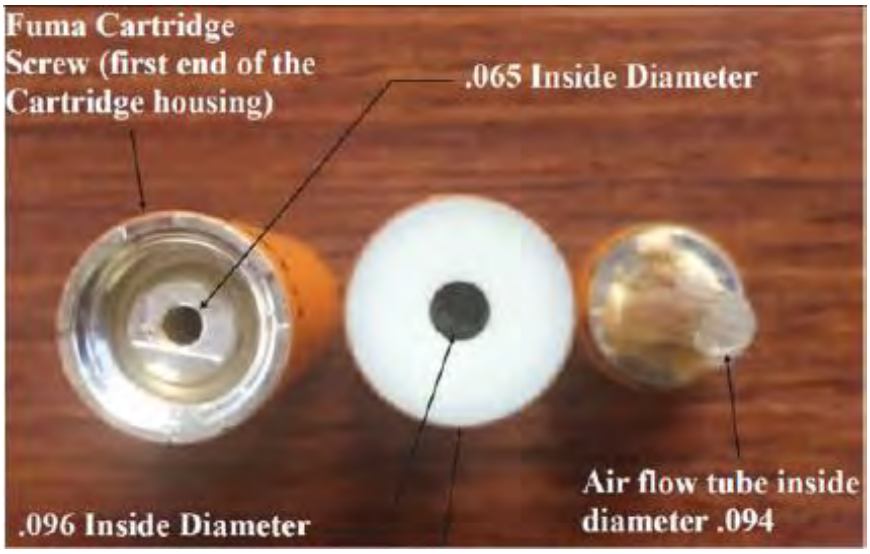
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See '864 Priority Chart at 4 (citing CRTP Attachment E at FUMA-INSPECTION-0036).

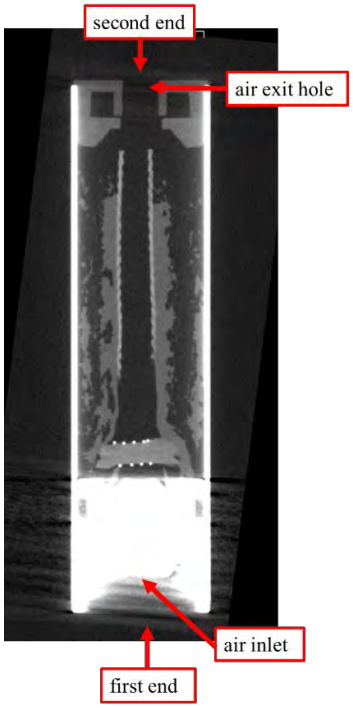


See '864 Priority Chart at 4 (citing CRTP Attachment D at Fig. 6).

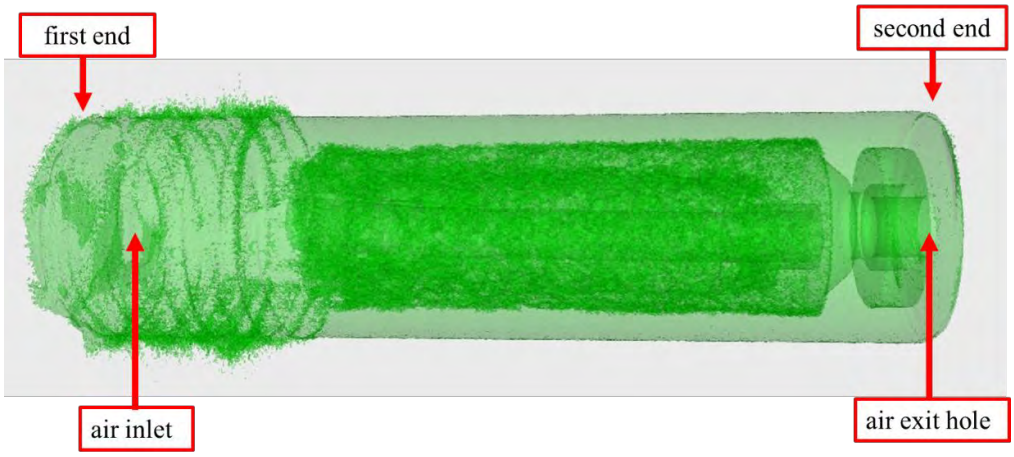


See '864 Priority Chart at 5 (citing CRTP Attachment D at Fig. 15).

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See RX-0079 (CT scans of Fuma Starter Kit) at RX-0079.17 (annotated in red).



See RX-0079 (CT scans of Fuma Starter Kit) at RX-0079.41 (annotated in red).

The inventor of the Asserted Patents further admitted that the Fuma Prototype discloses claim element 1(b). *See* Conley '864 Declaration at ¶5 (Independent claim 41 – Recitation 1).

NJOY also admitted that the Fuma Prototype discloses claim element 1(b). *See* '864 Priority Chart at 3-5.

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e. ’864 Patent, claim 1[c]: “the first end of the housing being adapted to electrically couple to the power source”

1. Xia ’610 in view of Wang ’554 and Fang ’044 and Smoke Fifty-One Duo– ’864 Patent, Claim 1[c]

The evidence will show that Xia ’610 discloses or renders obvious, alone or in combination with Wang ’554 and Fang ’044 and Smoke Fifty-One Duo this limitation. *See, e.g.,* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 665-672; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 221-265; JX-0596 (Xia ‘610); JX-0595 (Fang ‘044); RX-0130C (Declaration of Yardimici). NJOY and its expert do not dispute that this limitation is met by Xia ’610. *See* CX-2110 (Complainant’s First Sup. Validity Contentions (03/12/2024)) at 793-805; CX-2726C (Vallee Reb. Rpt.) at Appx. A-1, ¶ 235.

For example, Xia ’610 discloses “connecting conductor A” as part of the “generator”: “a hollow connecting conductor A (5), a vibrating diaphragm (7), a liquid-blocking plate (8), a secondary liquid storage chamber (10), a heater (9), a liquid-guiding mechanism (11), a liquid storage chamber (12) and a soft suction nozzle (13) are sequentially arranged inside the generator from left to right; and the connecting conductor A (5) is provided with an air inlet (702).” JX-0596 (Xia ‘610) at JX-0596.3; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 667-668. Xia ’610 explains that the connecting conductor B provides part of the electrodes that power the heater. *Id.*

Xia ’610 further explains that “[w]hen the connecting conductor B6 and the connecting conductor A5 are in threaded connection or clamping groove connection through the hollow contact copper caps, attention must also be paid to the problem of insulation between the positive and negative electrodes,” demonstrating that the connecting conductor B is electrically conductive. JX-0596 (Xia ‘610) at JX-0596.12*; see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 669. Xia ’610’s description that the connecting conductors contain “copper caps,” and warning that

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"attention must be paid to the problem of insulation between the positive and negative electrodes" demonstrate to a POSITA that the "connecting conductors" disclosed are electrically conductive.

The connecting conductor A disclosed in Xia '610 is part of the claimed "housing" at least as NJOY interprets the claims and the "housing" (including that internal components can serve as part of the claimed housing, *see* n. 27).

Xia '610 explains that the connecting conductor A of the generator mechanically and electrically couples with connecting conductor B of the controller: "if the connecting conductor B6 is connected with the generator through the connecting conductor A5, the environmental-protecting type incombustible atomizing electronic cigarette with the function of the cigarette substitute can be formed." JX-0596 (Xia '610) at JX-0596.10*; see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶670. Xia '610 further explains specific ways in which the two can be mechanically and electrically coupled via the connecting conductors A and B. JX-0596 (Xia '610) at JX-0596.10-11*; see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶670.

Xia '610 illustrates an example of an electrically conductive portion of a power source (the "connecting conductor B" (6) of the "controller") in connection with an electrically conductive portion of a cartridge (the "connecting conductor A" (5) of the "generator") in figure 3. JX-0596 (Xia '610) at Fig. 3*; see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 671-672. Xia '610 also illustrates an example electrically conductive portion as part of a cartridge, configured to mechanically and electrically couple with an electrically conductive portion of a power source, in Figures 1 and 2. JX-0596 (Xia '610) at Figs. 1, 2*; see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 671-672.

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2. Wang '554 in view of Xia '610 and Fang '044 and Smoke Fifty-One Duo – '864 Patent, Claim 1[c]

The evidence will show that Wang '554 discloses or renders obvious, alone or in combination with Xia '610 and Fang '044 and Smoke Fifty-One Duo this limitation. *See* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 673-677; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 267-295; RX-0005 (Wang '554); JX-0596 (Xia '610); JX-0595 (Fang '044); RX-0130C (Declaration of Yardimici). NJOY and its expert do not dispute that this limitation is met by Wang '554. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 757-770; CX-2726C (Vallee Reb. Rpt.) at Appx. A-2, ¶ 143.

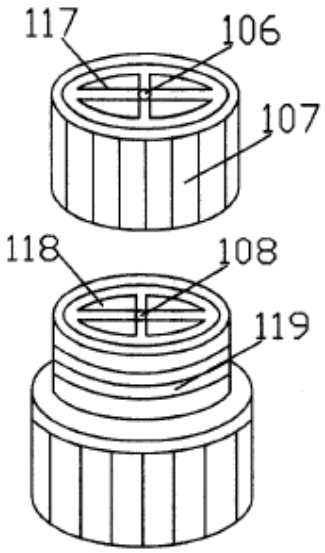
For example, Wang '554 discloses that "the output end 109 of the cigarette rod and the input end 107 of the cigarette holder are connected together," thus establishing that item 107 of the housing of the cartridge establishes mechanical connection to output end 109 of the cigarette rod portion. For example, Wang '554 elaborates, stating that the two ends fix the two portions together for use: "The output end 109 of the cigarette rod matches the input end 106 of the cigarette holder, and two poles are isolated by an insulating material, and are connected with the input end 107 of the cigarette holder, respectively, thereby connecting to the electric heater 104 of the cigarette holder. At the same time, it plays a role in being fixed with the cigarette holder as a whole." RX-0005 (Wang '554) at RX-0005.6-7; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 675.

For example, the evidence will show that item 107 of the cartridge housing also provides electrical coupling to the power source via, *e.g.*, electrode 117, as explained in element 1[c] above, *e.g.*: "the input end of the cigarette holder matches the output end of the cigarette rod, the two poles are isolated by an insulating material, and are connected with the output end of the cigarette rod, that is, the two poles are connected to the output end, respectively, an electrode 117 is in butt

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joint with an electrode [118], the electrode 107 is in butt joint with an electrode 119, and the air inlet 106 and the air outlet 108 are also in butt joint, thereby playing the role of fixing the cigarette holder and the cigarette rod as a whole." RX-0005 (Wang '554) at RX-0005.8; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 676.



See RX-0005 (Wang '554) at Fig. 4; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 676.

Thus, Wang '554 makes clear that the "electric heater 104" in the cartridge is electrically coupled to the "battery 110" in the cigarette rod part, via the "the first end of the housing," through electrodes 117, 118, 107 and 119. Though not illustrated in Figure 1, Mr. Leinsing will opine that a POSITA would understand that the heating coil (104) is in contact with, and electrically coupled, to the first end of the housing, for example to complete the circuit and power the device. For example, Wang '554 states that "[t]wo poles of the electric heater 104 are connected with two poles of the input end 106, respectively." RX-0005 (Wang '554) at RX-0005.7; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 677.

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3. Fang ’044 in view of Xia ’610 and Wang ’554 and Smoke Fifty-One Duo – ’864 Patent, Claim 1[c]

The evidence will show that Fang ’044 discloses or renders obvious, alone or in combination with Xia ’610 and Wang ’554 and Smoke Fifty-One Duo this limitation. *See* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 678-679; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 296-321; JX-0595 (Fang ‘044); JX-0596 (Xia ‘610); RX-0005 (Wang ‘554); RX-0130C (Declaration of Yardimici).

For example, the evidence will show that Fang ’044 discloses that “the electric heating film wire (16) is electrically connected with the battery (3) through the fuming device control switch (4).” JX-0595 (Fang ‘044) at JX-0595.3; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 679. A POSITA would understand that the heating film wire 16 of Fang is connected “through the fuming device control switch” (as Fang states) via an electrically conductive portion because Fang states that they are “electrically connected.” Thus, in making Fang ’044 a cartridge configuration, a POSITA would have been motivated to include an electrically conductive portion on the first end of the housing of the cartridge portion, to connect to the heating coil. Additionally, in making Fang ’044 a cartridge configuration, a POSITA would have been motivated to include a mechanically connective portion, so that the cartridge portion and the power portion could be connected for use and disconnected to replace the cartridge portion. Neither portion has a substantial use without being mechanically and electrically connected to the other. Further, both because it is the most simple design and in view of other references, such as Xia ’610 and Wang ’554 and Smoke Fifty-One Duo, a POSITA would have been motivated to make the same connective portions both the mechanical and electrical connection, such as using metal threaded connectors as was known in the art.

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4. Wang ’927 in view of Wang ’554 and NPRO Style – ’864 Patent, Claim 1[c]

The evidence will show that Wang ’927 discloses or renders obvious, alone or in combination with Wang ’554 and NPRO Style this limitation. *See* JX-0634 (Leinsing Opening Rpt., Appx. B) at ¶¶ 255-257; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 323-356; JX-0594 (Wang ’927); RX-0005 (Wang ’554); RX-0080 (Photos of NPRO Style); RPX-0008 (Physical sample of NPRO Style); JX-0405 (CT Scans of NPRO Style); RX-0094 (Raw CT Scan of NPRO Style).

For example, as explained above with respect to ’864 Patent claim 1[a], the evidence will show that Wang ’927 discloses the use of a cartridge configuration, with threaded connections. JX-0594 (Wang ’927) at Fig. 1, JX-0594.1-5; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 327; JX-0632C (Leinsing Opening Rpt.) at ¶ 330.

Further, it was well known in the art to have the power source portion separable from the rest of the e-cigarette and use threaded connections made of conductive material to connect the power source portion and the atomizer and cartridge portion. For example, Xia ’610 disclosed a “controller” portion (i.e., the power source portion) separate from the “generator” portion (i.e., the atomizer and cartridge portion) and the two portions being connected together using “the connecting conductor B6 and the connecting conductor A5 in threaded connection or clamping groove connection.” As another example, as discussed above, Wang ’554 disclosed a “cigarette rod” portion (i.e., the power source portion) separate from the “cigarette holder” portion (i.e., the atomizer and cartridge portion) and conductive threaded connections are used to connect the cigarette rod and the cigarette holder. Prior art systems such as the Red Dragon, Smoke 51 Duo, the Cigarette Electronique E-Cig, and the NPRO Style all use threaded conductors to connect the battery with the cartridge.

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5. Han ’364 in view of Fang ’044 and NPRO Style – ’864 Patent, Claim 1[c]

The evidence will show that Han ’364 in view of Fang ’044 and NPRO Style discloses or renders obvious this limitation. *See* JX-0635 (Leinsing Opening Rpt., Appx. C) at ¶¶ 262-264; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 357-403.

For example, Han ’364 discloses “a screw part (2) made of electrically conductive brass (as known as Shinju)” that is designed to screw into the battery component 14; the battery component 14 also includes electrical contacts (e.g., such as a positive pole) to electrically connect filament 6 within the cartridge to the battery 14. *See* JX-0631 (Han ’364 certified English Translation) at [0013], [0017], [0034]; *see also* JX-0635 (Leinsing Opening Rpt., Appx. C) at ¶¶ 262-264.

NJOY disputes that Han ’364 explicitly discloses that the first end of the housing is electrically coupled to the electrically conductive portion of the power source. *See* CX-2726C (Vallee Reb. Rpt.) at Appx. C, ¶ 254. However, as Mr. Leinsing will opine, a POSITA would have understood this implicitly through reviewing the disclosure of Han ’364. For example, Mr. Leinsing will opine that a POSITA reviewing Han ’364 would have understood inherently that battery 14 would have an electrically conductive portion (*e.g.,* including the positive pole of the battery) such that electricity is supplied to the filament 6 when the filament 6 is connected to the positive pole of the battery component. *See* JX-0631 (Han ’364 certified English Translation) at [0013], [0017], [0034]. Further, Han ’364 refers to the electrically conductive portion of the cartridge as a “screw for connecting to the battery part.” *See id.*, at [0034]. A person of ordinary skill in the art would have also inherently understood through this disclosure that screw 2 is configured to couple to the battery part 1. Further, the fact that the cartridge and battery part 14 are connected via a “screw” would provide sufficient information to a person of ordinary skill in the

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art to understand that Han ’364 describes a mechanical and electrical coupling of the cartridge to the battery part 14.

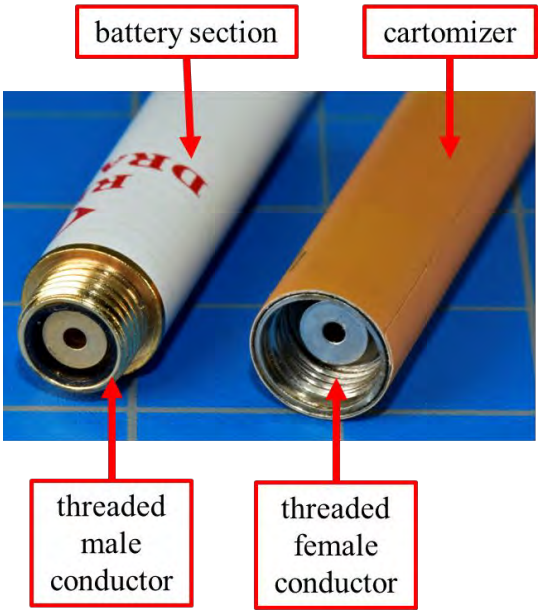
6. Red Dragon in view of Fang ’044 and Wang ’927 – ’864 Patent, Claim 1[c]

The evidence will show that Red Dragon in view of Fang ’044 and Wang ’927 discloses or renders obvious this limitation. *See* JX-0638 (Leinsing Opening Rpt., Appx. E) at ¶¶ 258-260; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 461-505; RX-0074 (Photos of Red Dragon Kit # 1); RX-0076 (Photos of Red Dragon Kit # 2); RX-1309 (Red Dragon Product 3 Piece Kit (Evans 2)); RX-0077 (CT scans of Red Dragon Kit #2); RX-0098 ([vg-project] Red Dragon - Cartridge_Pen Package.zip (Native)); RX-0099 ([vg-project] Red Dragon - Pen.zip (Native)); RPX-0009 (Red Dragon 3-Piece Kit); RPX-0010 (Red Dragon 3-Piece Kit (Sealed); JX-0595 (Fang ’044); JX-0594 (Wang ’927). NJOY and its expert do not dispute that the Red Dragon discloses or renders obvious this claim limitation. *See* CX-2110 (Complainant’s First Sup. Validity Contentions (03/12/2024)) at 916-937; CX-2726C (Vallee Reb. Rpt.) at Appx. E, ¶ 114.

The evidence will show that the Red Dragon discloses or renders obvious this claim limitation. The first end of the housing includes an electrically conductive threaded female conductor. *See* RX-0074 (Photos of Red Dragon Kit #1) at RX-0074.45 ; *see also* JX-0638C (Leinsing Opening Rpt., Appx. E) at ¶¶ 258-260. The threaded female conductor is adapted to couple to the battery section through the threaded male conductor. *Id*

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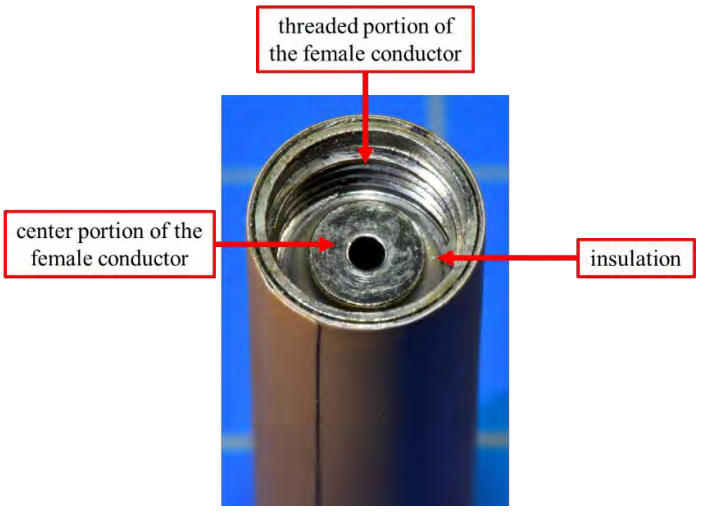
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2.

See RX-0074 (Photos of Red Dragon Kit #1) at RX-0074.45 (annotated in red); *see also* JX-0638C (Leinsing Invalidity Rpt., Appx. E) at ¶ 259.

The central tube is insulated from the threaded surface of the female conductor. JX-0632C (Leinsing Opening Rpt.) at ¶ 478.



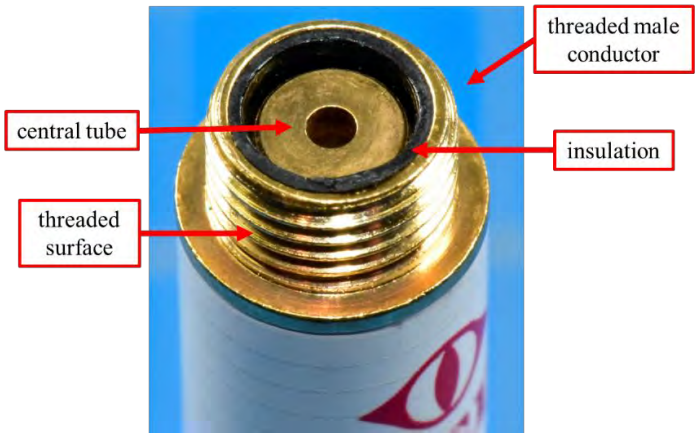
See JLI-ITC1372_00980251 (annotated in red). *See also* Evans Depo. Tr. at 86:25-88:25.

Correspondingly, in the battery section, one terminal of the rechargeable battery is connected to threaded surface of the male connector and the other terminal of the battery is

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connected to the central tube of the male connector, where the threaded surface and the central tube are insulated from each other. JX-0632C (Leinsing Opening Rpt.) at ¶ 479.



See JLI-ITC1372_00980397 (annotated in red). *See also* Evans Depo. Tr. at 86:25-88:25.

When the cartomizer is screwed onto the battery portion, the central tube of the male conductor and the central tube of the female conductor are electrically coupled to each other; and the threaded surface of the male conductor and the threaded surface of the female conductor are mechanically and electrically coupled to each other to complete the electric circuit of the Red Dragon E-Cig. JX-0632C (Leinsing Opening Rpt.) at ¶ 480. When a user draws from the second end of the cartomizer, the e-cigarette is turned on and the heating coil would receive power from the battery through male conductor and female conductor.

7. Smoke Fifty-One Duo in view of Fang '044 and Wang '927 – '864 Patent, Claim 1[c]

The evidence will show that Smoke Fifty-One Duo in view of Fang '044 and Wang '927 discloses or renders obvious this limitation. *See* JX-0636C (Leinsing Opening Rpt., Appx. D) at ¶¶ 247-249; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 413-460; RX-0130C (Declaration of Yardimici); JX-0595 (Fang '044); JX-0594 (Wang '927). NJOY and its expert do not dispute that

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Smoke Fifty-One Duo discloses or renders obvious this claim limitation. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 897-916; CX-2726C (Vallee Reb. Rpt.) at Appx. D, ¶ 71.

The evidence will show that the Smoke Fifty-One Duo discloses or renders obvious this claim limitation. The first end of the housing includes an electrically conductive threaded female conductor. For example, the first end of the housing includes an electrically conductive threaded female conductor. *See, e.g.,* RX-0130C (Yardimici Declaration) (Yardimici Declaration) at RX-0130C.37; RX-1558C (RJR Smoke Fifty-One Duo '881 Chart) at ITC1372_000008068; *see also* JX-0636C (Leinsing Opening Rpt., Appx. D) at ¶¶ 247-249. The threaded female conductor is adapted to couple to the battery section through the threaded male conductor. *Id*

8. NJOY NPRO in view of Wang '554, Fang '044, and Wang '927 – '864 Patent, Claim 1[c]

The evidence will show that NJOY NPRO in view of Wang '554, Fang '044, and Wang '927 discloses or renders obvious this limitation. *See* JX-0640C (Leinsing Opening Rpt., Appx. G) at ¶¶ 256-258; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 548-612; RX-0082 (Photos of NJOY NPRO); JX-0404 (CT Scans of NJOY NPRO); RPX-0007 (NJOY NPRO Sample); RX-0095 (CT Scan Raw Data of NJOY NPRO); RX-0005 (Wang '554); JX-0595 (Fang '044). NJOY and its expert do not dispute that the NJOY NPRO discloses or renders obvious this claim limitation. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 963-980; CX-2726C (Vallee Reb. Rpt.) at Appx. G, ¶ 208.

The evidence will show that the NJOY NPRO discloses or renders obvious this claim limitation. The NJOY NPRO's first end of the housing is adapted to electrically couple to the power source. *See, e.g.,* JX-0482C (NJOY, Welcome to the Tobacco Plus Expo 2009) at JX-0482C.4; RX-0082 (Photos of NJOY NPRO); JX-0404 (CT Scans of NJOY NPRO); RPX-0007

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(NJOY NPRO Sample); RX-0095 (CT Scan Raw Data of NJOY NPRO); *see also* JX-0640C (Leinsing Opening Rpt., Appx. G) at ¶¶ 256-258. The threaded conductors are electrically conductive to allow current to pass from the battery in the power source to the atomizer/vaporizer in the cartridge. *Id.*

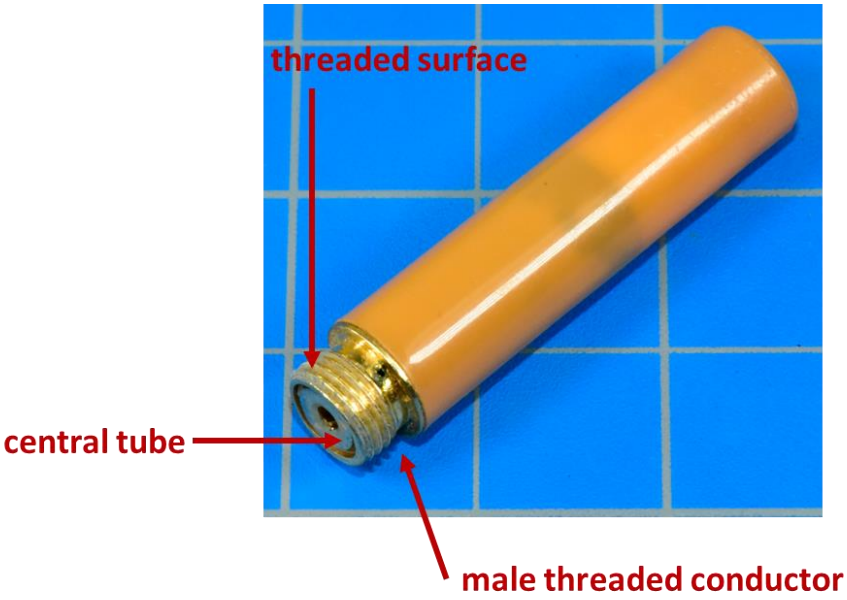


Specifically, NJOY NPRO cartridge includes a threaded male conductor, which further includes a threaded surface, and a central tube. RX-0082 (Photos of NJOY NPRO); JX-0404 (CT Scans of NJOY NPRO); RPX-0007 (NJOY NPRO Sample); RX-0095 (CT Scan Raw Data of NJOY NPRO); RX-0110C (NJOY NPRO User Guide Tri-Fold); *see also* JX-0632C (Leinsing Invalidity Rpt.) at ¶¶ 555-559. One terminal of the heating coil is connected to the central tube while the other terminal is connected to the threaded surface, where the central tube is insulated from the threaded surface. *Id.* When the male threaded conductor is screwed into the threaded

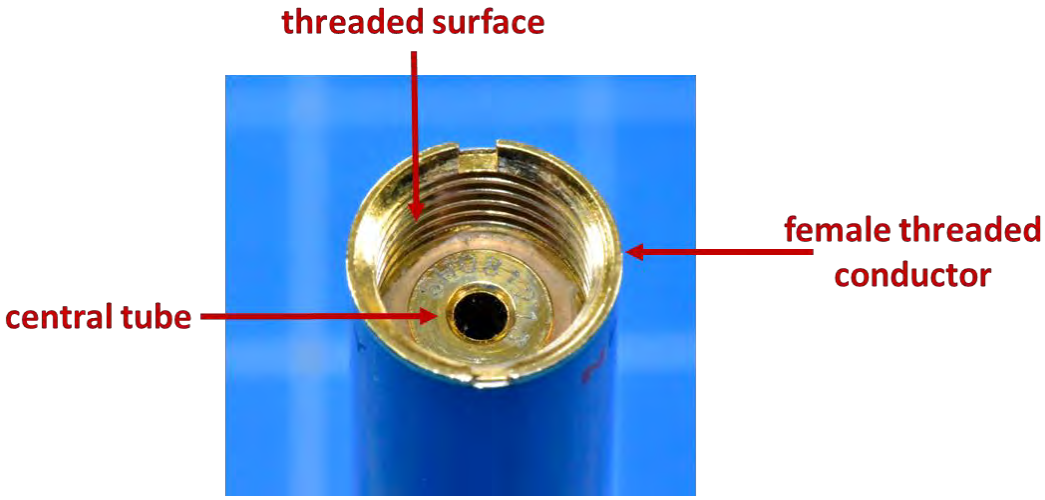
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female conductor in the power source, current flows from the batter in the power source to the heating coil in the cartridge. *Id.*



RX-0082 (Photos of NJOY NPRO) at RX-0082.60 (annotated in red).



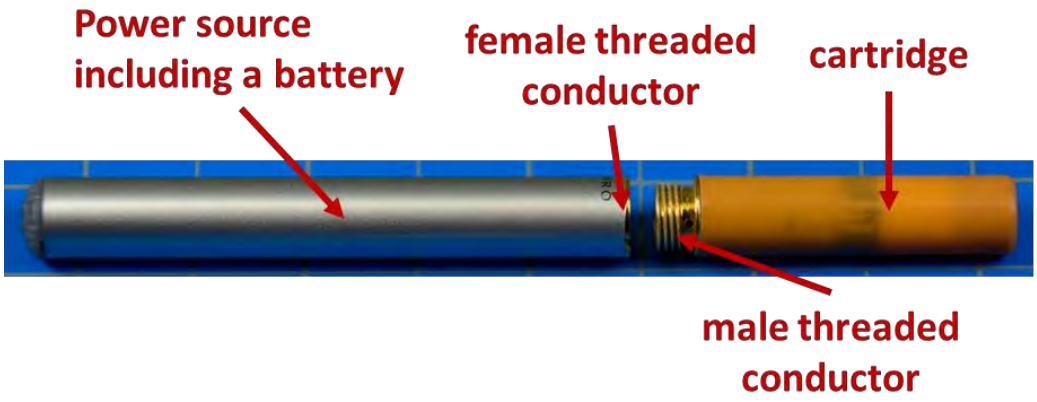
RX-0082 (Photos of NJOY NPRO) at RX-0082.101 (annotated in red).

The threaded conductors mechanically couple the two portions together and also electrically couple the two together, allowing current to pass from the battery to the atomizer in

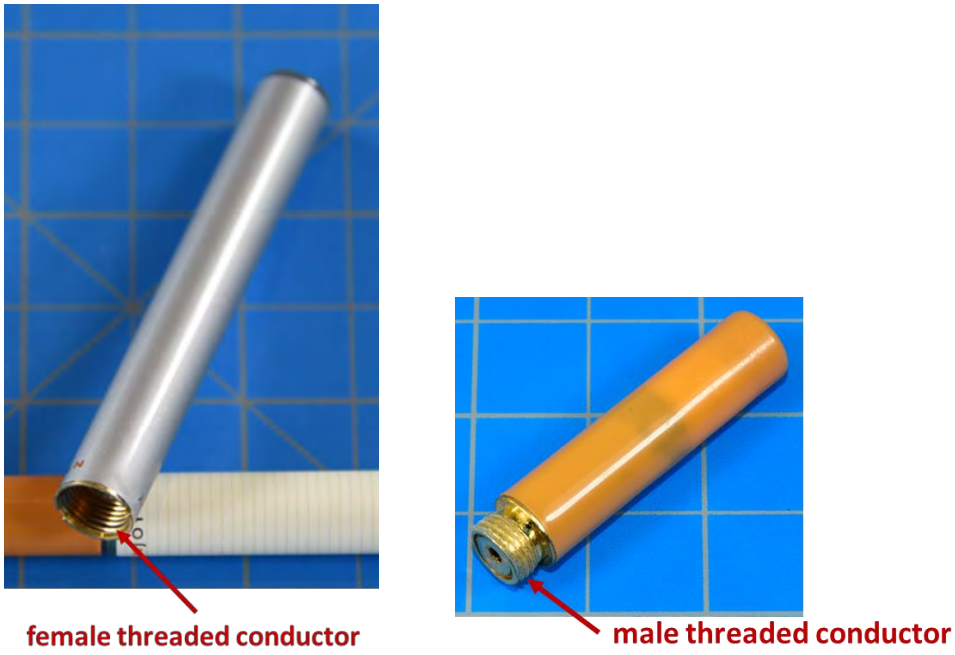
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the cartridge. As shown below, the cartridge housing of NPRO includes the male threaded conductor and the power source includes the female threaded conductor to electrically and mechanically couple the cartridge to the power source.



See RX-0082 (Photos of NJOY NPRO) at RX-0082.59 (annotated in red).



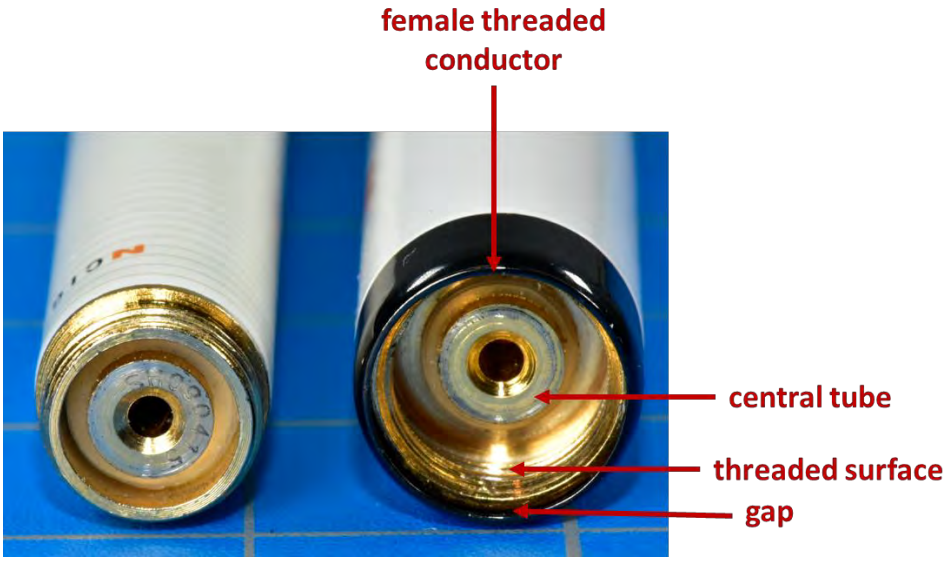
See RX-0082 (Photos of NJOY NPRO) at RX-0082.59 & RX-0082 (Photos of NJOY NPRO) at RX-0082.60 (annotated in red); *See also* RX-0110C (NJOY NPRO User Guide Tri-Fold).

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9. NJOY NCIG in view of Wang '554, Fang '044, and Wang '927 – '864 Patent, Claim 1[c]

For the same reasons why NJOY NPRO in view of Wang '554, Fang '044, and Wang '927 discloses or renders obvious this limitation, the NJOY NCIG in view of Wang '554, Fang '044, and Wang '927 also discloses or renders obvious this limitation. *See* JX-0632C (Leinsing Invalidity Rpt.) at ¶¶ 584-612; JX-0640C (Leinsing Invalidity Rpt., Appx. G) at ¶¶ 256-258; RPX-0006 (NJOY NCIG Sample); RX-0084 (Photos of NJOY NCIG); JX-0402 (CT Scans of NJOY NCIG); RX-0090 (CT scan of NCIG); RX-0109C (NJOY NCIG User Guide); JX-0482C (NJOY Welcomes to the Tobacco Plus Expo 2009), JX-0482C.3.



See RX-0084 (Photos of NJOY NCIG) at RX-0084.52 (annotated in red).

10. Cigarette Electronique – '864 Patent, Claim 1[c]

The evidence will show that Cigarette Electronique discloses or renders obvious this limitation. *See* JX-0639C (Leinsing Opening Rpt., Appx. F) at ¶¶ 299-303; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 506-547; RX-0072 (Photos of Cigarette Electronique); RPX-0011 (Cigarette Electronique Kit).. NJOY and its expert do not dispute that this limitation is met by the Cigarette

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Electronique. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 937-963; CX-2726C (Vallee Reb. Rpt.) at Appx. F, ¶ 167.

For example, the evidence will show the first end of the housing and the second end of the housing, as well as the second aperture proximate the second end of the housing and the first aperture proximate the first end of the housing.



See RX-0072 at RX-0072.32 (annotated in red), RX-0072 at RX-0072.34 (annotated in red), RX-0072 at RX-0072.36; (annotated in red); *see also* JX-0639C (Leinsing Opening Rpt., Appx. F) at ¶ 300;

To the extent that it is determined that a first aperture must be on an end of the cartridge's housing to anticipate the claim limitation, Mr. Leinsing will opine that a POSITA would be motivated to swap the threaded conductors in the Cigarette Electronique Device so that the threaded male conductor is on the cartridge and a threaded female conductor is on the battery section. *See* JX-0639C (Leinsing Opening Rpt., Appx. F) at ¶ 301-303. The use of male or female threaded conductors on the cartridge component are simply design choices and well known in the art. *See* e.g., Xia '610 (showing that the cartridge uses a male conductor and the battery section uses a female conductor); Wang '554 (showing that the cartridge uses a female conductor and the battery section uses a male conductor); Han '364 (showing that the cartridge uses a male conductor and the battery section uses a female conductor); NJOY NPRO Style (showing that the cartridge

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uses a male conductor and the battery section uses a female conductor); *see also* JX-0639C (Leinsing Opening Rpt., Appx. F) at ¶ 301-303. There is also motivation to use a male threaded connector on the cartridge and female on the battery portion. The battery portion could have live contacts and female connector on battery portion provides for more protection. Male contacts on cartridge allows for smoother connection surface so that when many cartridges are held in your pocket they don't collect dust on the inside of the female connector. The charger for connecting to a female connector on the battery portion would be able to have a circular protected groove that is more difficult to short against the center contact. Further, a POSITA would have been motivated to look to a prior art reference or system like NPRO Style to modify Smoke Fifty-One Duo. For example, NPRO Style uses a male threaded conductor for the cartridge and a female threaded conductor for the battery section. A POSITA would have been motivated to use a male conductor on the cartridge and a female conductor on the battery portion, as used by NPRO Style, on the Cigarette Electronique Device for the reasons discussed above. For similar reasons, a POSITA would have also been motivated and understood to modify the Cigarette Electronique Device cartridge with any of the male conductor disclosed in Xia '610's cartridge, the male conductor of the atomizer in the Cigarette Electronique device, and screw 2 of Han '364.

Further, a POSITA would have been motivated to look to a prior art reference or system like Xia '610 to modify the Cigarette Electronique Device. Xia '610 uses a male threaded conductor for the cartridge and a female threaded conductor for the battery section. A POSITA would have been motivated to use a male conductor on the cartomizer and a female conductor on the battery portion, as used in Xia '610 on the Cigarette Electronique Device. *See* JX-0639C (Leinsing Opening Rpt., Appx. F) at ¶ 301-303.

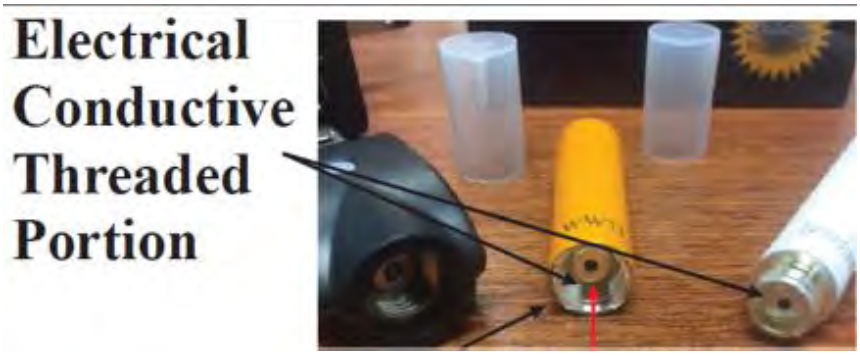
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11. Fuma Prototype – '864 Patent, Claim 1[c]

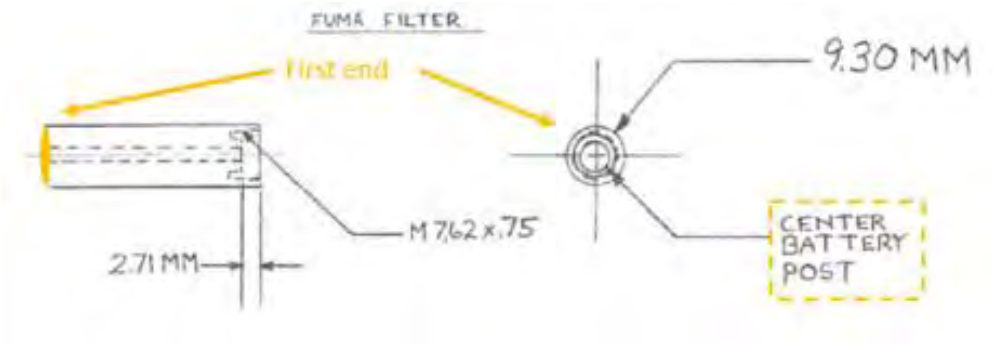
The Evidence will show that the Fuma Prototype discloses this limitation. *See, e.g.,* Leinsing Opening Rpt., Appx. H) at ¶¶ 226-228; NJOY's 13th Supp. ROG Responses; RX-0078 (Photos of Fuma Starter Kit); RX-0079 (CT scans of Fuma Starter Kit).

For example, the first end of the housing includes the threaded female conductor that is adapted to electrically couple to the threaded male conductor of the Fuma Battery. Specifically, when the Fuma Cartridge is screwed onto the Fuma Battery, the electrically conductive threaded surface of the threaded female conductor electrically couples to the electrically conductive threaded surface of the threaded male conductor to allow current from or to the battery to pass through to power the heating coil. Similarly, when the Fuma Cartridge is screwed onto the Fuma Battery, the central tube of the threaded female conductor electrically couples to the central tube of the threaded male conductor to allow current to or from the battery to pass through and power the heating coil.

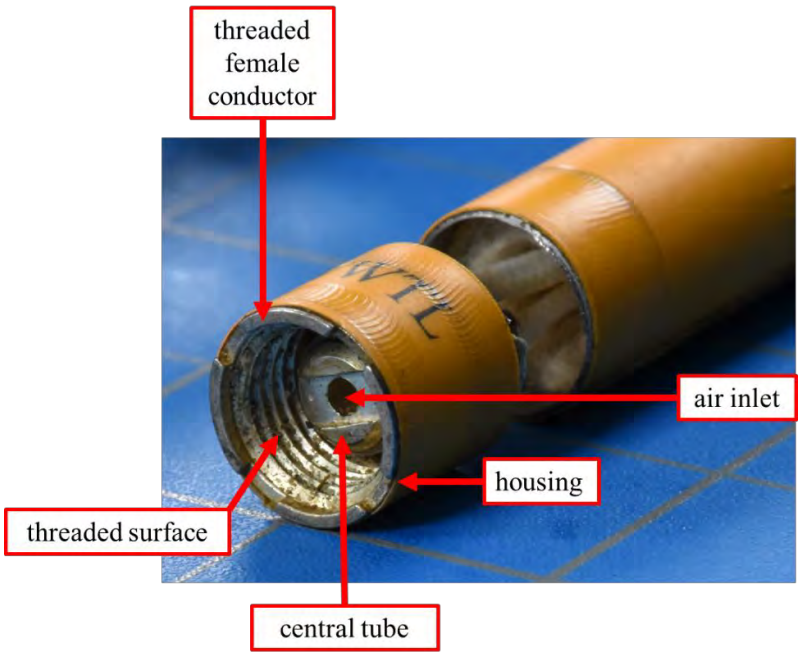


See '864 Priority Chart at 5 (citing CRTP Attachment D at Fig. 2).

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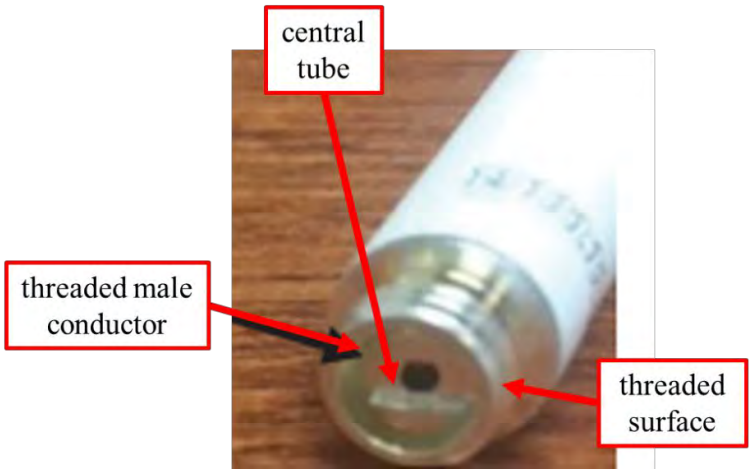
See '864 Priority Chart at 5 (citing CRTP Attachment E at FUMA-INSPECTION-0036).



See RX-0078 (Photos of Fuma Starter Kit) at RX-0078.19 (annotated in red).

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See CRTP Attachment D at Fig. 2.

The inventor of the Asserted Patents further admitted that the Fuma Prototype discloses claim element 1(c). *See* Conley '864 Declaration at ¶5 (Independent claim 41 – Recitation 1).

NJOY also admitted that the Fuma Prototype discloses claim element 1(c). *See* '864 Priority Chart at 5.

f. '864 Patent, claim 1[d]: "the first aperture and the second aperture being in communication with one another to permit an airflow through the housing from the first aperture to the second aperture"

1. Xia '610 in view of Wang '554 and Fang '044 and Smoke Fifty-One Duo– '864 Patent, Claim 1[d]

The evidence will show that Xia '610 discloses or renders obvious, alone or in combination with Wang '554 and Fang '044 and Smoke Fifty-One Duo this limitation. *See, e.g.,* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 680-684; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 221-265; JX-0596 (Xia '610); JX-0595 (Fang '044); RX-0130C (Declaration of Yardimici). NJOY and its expert do not dispute that this limitation is met by Xia '610. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 793-805; CX-2726C (Vallee Reb. Rpt.) at Appx. A-1, ¶ 235.

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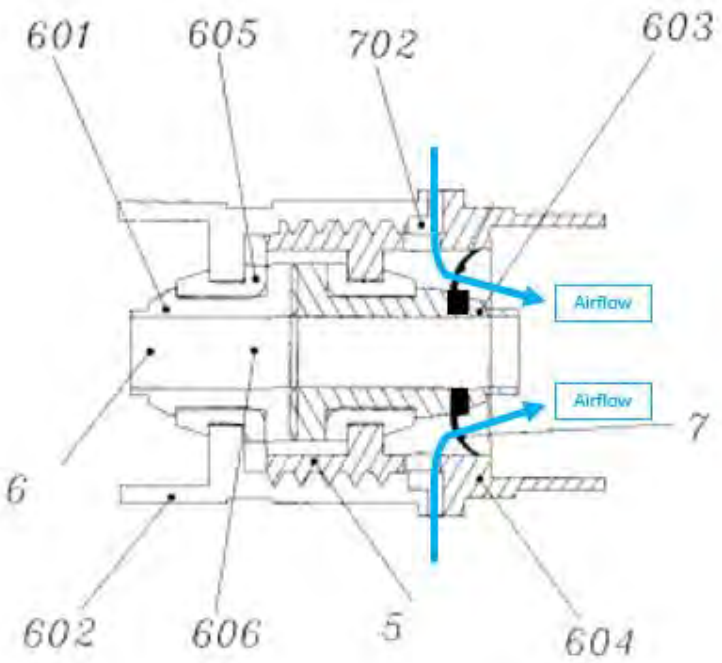
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For example, Xia ’610 describes that air flows in from the left end of the cartridge portion, through the body of the generator portion, and out the right end: “under the action of suction by the smoker, airflow enters the inside of the generator from the air inlets 702 on a side surface of the generator, under the action of the airflow, the vibrating diaphragm 7 vibrates … the heater 9 starts working, the chemical liquid is instantly vaporized in an atomizing working room of the heater 9, and the vaporized chemical liquid is sucked out by the smoker from the soft suction nozzle 13.” JX-0596 (Xia ‘610) at JX-0596.10*; see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 682. For the user’s suction at the suction nozzle 13 to draw air into the device and vibrate the diaphragm 7, there must be fluid communication (*i.e.,* air movement) from the area identified as the first aperture through to the are identified as the second aperture.

The expected and described airflow through Xia ’610’s device is illustrated via a few annotations in figures 3-5:

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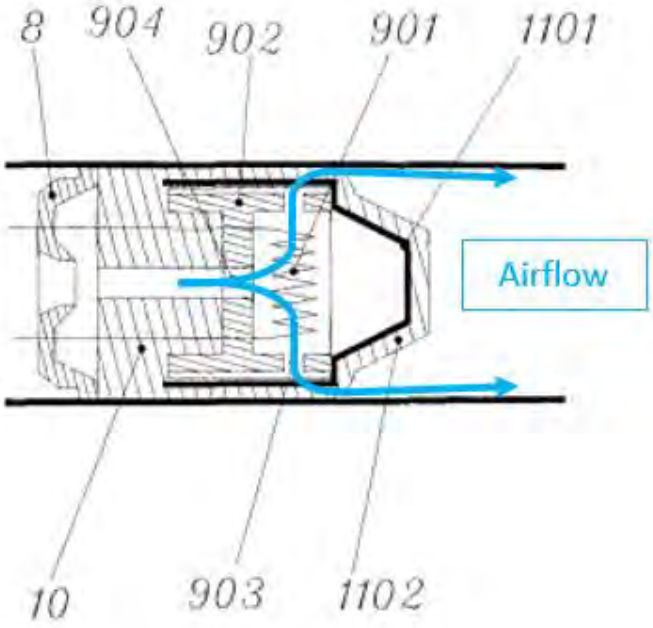


图 4

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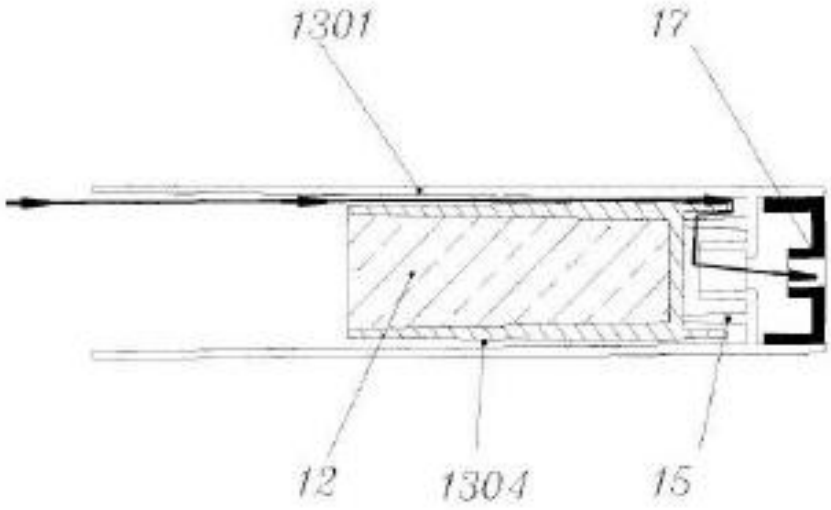
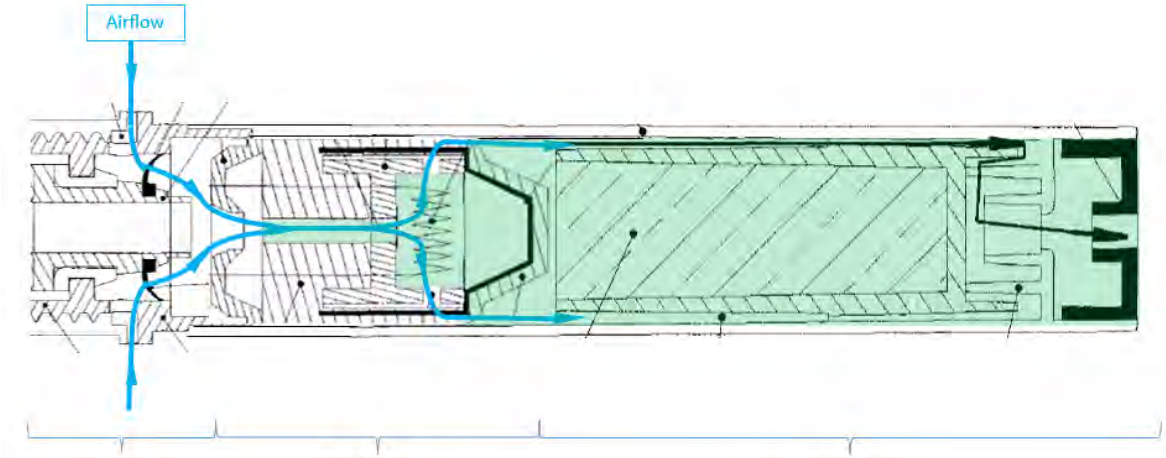


Fig. 5



See JX-0596 (Xia '610) at FIGs 3-5; JX-0596 (Xia '610) at JX-0596.13, FIGs. 3, 4, 5*; see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 245; JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 683.

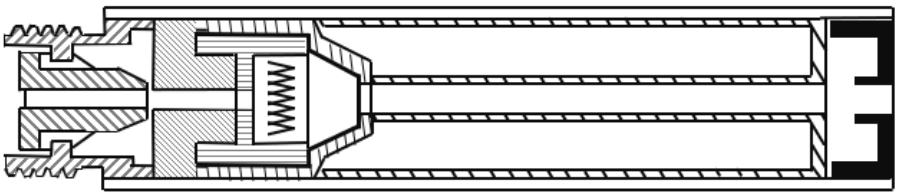
For example, as described above, Xia '610 discloses that air flows through the generator portion from the left end of the generator as illustrated in FIG. 2 to the right end. Xia '610 further

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explains that the airflow travels through the generator portion from the left end to the right end, past the liquid storage chamber 12: "the connecting conductor A5 is provided with air inlets 702 (see Fig. 3), a gap which is used as an airflow channel is left between the soft suction nozzle 13 and the liquid storage chamber 12 (see Fig. 5)." JX-0596 (Xia '610) at JX-0596.10*; see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 684.

Additionally, the evidence will show that the modified version of Xia '610 satisfies this limitation. For example, the first and second apertures are in fluid communication via an airflow straight through the middle of the modified device.



Modified

See JX-0632C (Leinsing Opening Rpt.) at ¶¶ 247-253.

2. Wang '554 in view of Xia '610 and Fang '044 and Smoke Fifty-One Duo – '864 Patent, Claim 1[d]

The evidence will show that Wang '554 discloses or renders obvious, alone or in combination with Xia '610 and Fang '044 and Smoke Fifty-One Duo this limitation. *See* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 685-688; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 267-295; RX-0005 (Wang '554); JX-0596 (Xia '610); JX-0595 (Fang '044); RX-0130C (Declaration of Yardimici). NJOY and its expert do not dispute that this limitation is met by Wang '554. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 757-770; CX-2726C (Vallee Reb. Rpt.) at Appx. A-2, ¶ 143.

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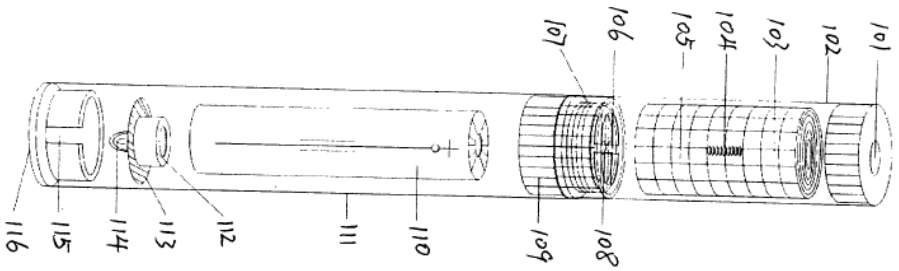
For example, Wang '554 discloses this limitation for the same reasons discussed for claim element 1[f] above. For example, Wang '554 discloses that "the airflow reaches the internal gap of the cigarette holder through the air outlet 108 of the cigarette rod and the air inlet 106 of the cigarette holder, and the smoke generated by the tobacco extract 103 instantly heated by the heater 104 is partially sucked out from the air outlet 101 of the cigarette holder." RX-0005 (Wang '554) at RX-0005.8; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 687. Air flows into a gap in the rolled "organic fiber 105," flows past the "heater 104," combines with the vaporized tobacco extract from the heater 104, and exits to the user via "air outlet 101". RX-0005 (Wang '554) at RX-0005.8 ("the smoke generated by the tobacco extract 103 instantly heated by the heater 104 is partially sucked out from the air outlet 101"); RX-0005 (Wang '554) at RX-0005.8 ("smoke produced when the tobacco extract 103 in the organic fiber 105 is heated by the electric heater 104"); RX-0005 (Wang '554) at RX-0005.8 ("air outlet 101…is placed at the other end of the air inlet 106…and is a channel for finally sucking out smoke") ; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 687. For example, Wang '554 describes the entire airflow channel:

> air inlet 115… an internal gap of the cigarette rod, the air outlet 108… the air inlet 106… an internal gap of the cigarette holder and the air outlet 101 of the cigarette holder form the complete airflow channel… a smoking motion causes airflow to enter the interior of the cigarette rod through the air inlet 115…the sensor 112 is driven to transmit a switching signal to the control circuit board 113, the control circuit board 113 drives the heater 104 connected together through terminals to work, at the same time, the airflow reaches the internal gap of the cigarette holder through the air outlet 108…and the air inlet 106 and the smoke generated by the tobacco extract 103 instantly heated by the heater 104 is partially sucked out from the air outlet 101

See RX-0005 (Wang '554) at RX-0005.8; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 687.

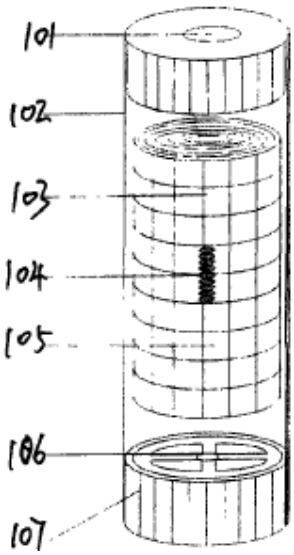
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See RX-0005 (Wang '554) at Fig. 1; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 687.

For example, the evidence will show that air enters Wang '554's cartridge through "air inlet 106." RX-0005 (Wang '554) at RX-0005.8; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 688. (Air flows into gap in the rolled "organic fiber 105," flows over the "heater 104," and exits to the user via "air outlet 101"). *Id.* In doing so, the air flow passes through the cartridge from the first aperture to the second:



See RX-0005 (Wang '554) at Figure 3; *see also* RX-1557C (Exh. 16 of Wang Deposition) at NJOYITC1_00122547; JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 688.

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3. Fang ’044 in view of Xia ’610 and Wang ’554 and Smoke Fifty-One Duo – ’864 Patent, Claim 1[d]

The evidence will show that Fang ’044 discloses or renders obvious, alone or in combination with Xia ’610 and Wang ’554 and Smoke Fifty-One Duo this limitation. *See* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 689-693; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 296-321; JX-0595 (Fang ‘044); JX-0596 (Xia ‘610); RX-0005 (Wang ‘554); RX-0130C (Declaration of Yardimici).

For example, the evidence will show that Fang ’044 explains that the airflow from the smoking channel extends all the way to the sensor 11: “When the utility model is in use, the smoking channel 10 generates a negative pressure in the atomizer control switch 4 by a suction force of a user, the silicon film-coated tablet 11 bulges in the support 13 towards the direction of the switch circuit board 12.” JX-0595 (Fang ‘044) at JX-0595.5-6; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 691. The “smoking channel” airflow passageway includes (and extends through) the chamber of the nicotine fuming device 5, including because (1) negative pressure propagates through the chamber to the control switch 4, and (2) air and vaporized nicotine oil flow from the chamber through the smoking channel during use: “smoking channel 10 generates a negative pressure in the atomizer control switch 4 by a suction force of a user… [and] nicotine oil on the temporary oil storage device 15 is fumed to produce nicotine oil smoke, and the nicotine oil smoke is smoked by the user through the gas pipe 8 and the smoking channel 10.” *Id.*

This structure would be retained in splitting the device into a cartridge configuration, so the airflow passageway would allow airflow through the cartridge portion in the same way, from the first aperture to the second aperture.

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Additionally, in combining Fang 044 with Xia 610 or Wang 554 or Smoke Fifty-One Duo, this feature would have been obvious for the same reasons those references disclose or suggest this feature.

4. Wang '927 in view of Wang '554 and NPRO Style – '864 Patent, Claim 1[d]

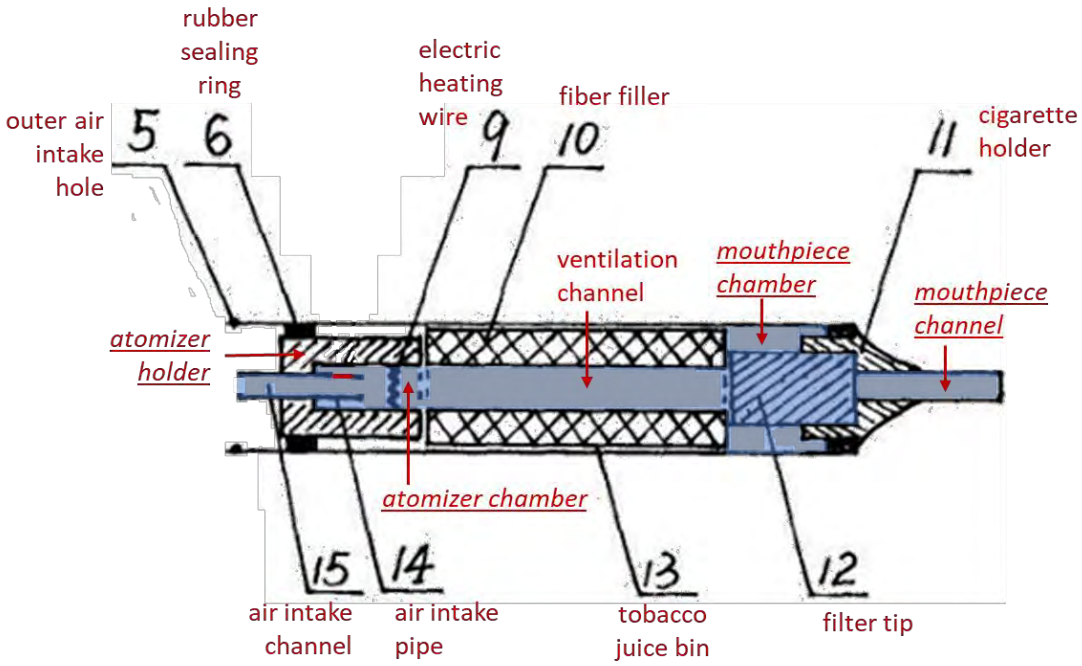
The evidence will show that Wang '927 discloses or renders obvious, alone or in combination with Wang '554 and NPRO Style this limitation. *See* JX-0634 (Leinsing Opening Rpt., Appx. B) at ¶¶ 262-263; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 323-356; JX-0594 (Wang '927); RX-0005 (Wang '554); RX-0080 (Photos of NPRO Style); RPX-0008 (Physical sample of NPRO Style); JX-0405 (CT Scans of NPRO Style); RX-0094 (Raw CT Scan of NPRO Style). NJOY and its expert do not dispute that this limitation is met by Wang '927. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 784-793; CX-2726C (Vallee Reb. Rpt.) at Appx. B, ¶ 192.

For example, the evidence will show that Wang '927 discloses the first aperture allows air to come into the casing 18. JX-0634 (Leinsing Opening Rpt., Appx. B) at ¶¶ 259-260. The air then follows through the airflow passageway to reach the opening at the right end of the casing 18 and then to the opening at the right end of the cigarette holder 11 to deliver the vaporized tobacco juice to the user.

Further, as discussed above in connection with element 1[b], it would have been obvious for a POSITA to modify the air intake pipe of Wang '927 and the resulting airflow passageway is configured to allow an airflow through the cartridge from the opening on the left end of the modified air intake pipe to the opening on the right end of the casing 18 and then to the opening on the right end of the cigarette holder 11 to deliver the vaporized tobacco juice to the user.

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See JX-0594 (Wang '927) at Fig. 1 (cropped to only show the tail end with switch swapped to the battery portion) (annotated in red and blue).

5. Han '364 in view of Fang '044 and NPRO Style – '864 Patent, Claim 1[d]

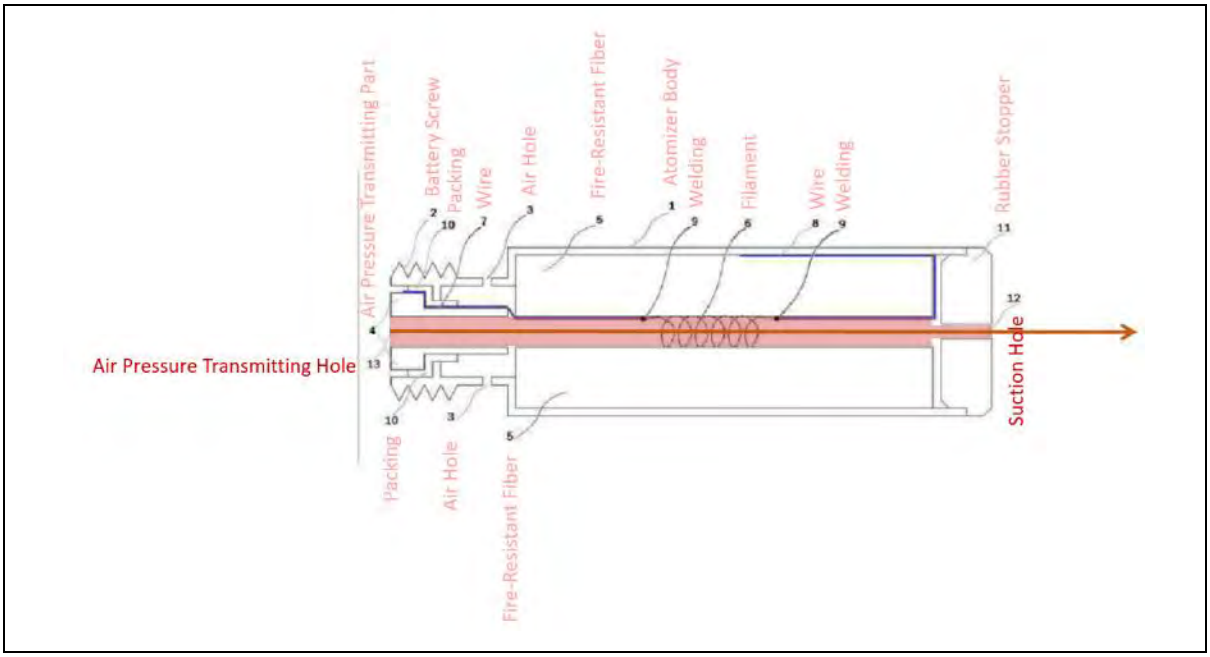
The evidence will show that Han '364 in view of Fang '044 and NPRO Style discloses or renders obvious this limitation. *See* JX-0635 (Leinsing Opening Rpt., Appx. C) at ¶¶ 265-269; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 357-403; JX-0631 (Han '364 certified English Translation) ; JX-0595 (Fang '044); RX-0080 (Photos of NPRO Style); RPX-0008 (NJOY NPRO Style Kit). NJOY and its expert do not dispute that Han '364 anticipates this claim limitation. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 893-897. CX-2726C (Vallee Reb. Rpt.) at Appx. C, ¶ 231.

For example, Han '364 discloses air flowing through the cartridge from the first aperture to the second aperture. See, e.g., JX-0631 (Han '364 certified English Translation) at [0013]; *see also* JX-0635 (Leinsing Opening Rpt., Appx. C) at ¶¶ 365-369, 370-376. Further, Mr. Leinsing

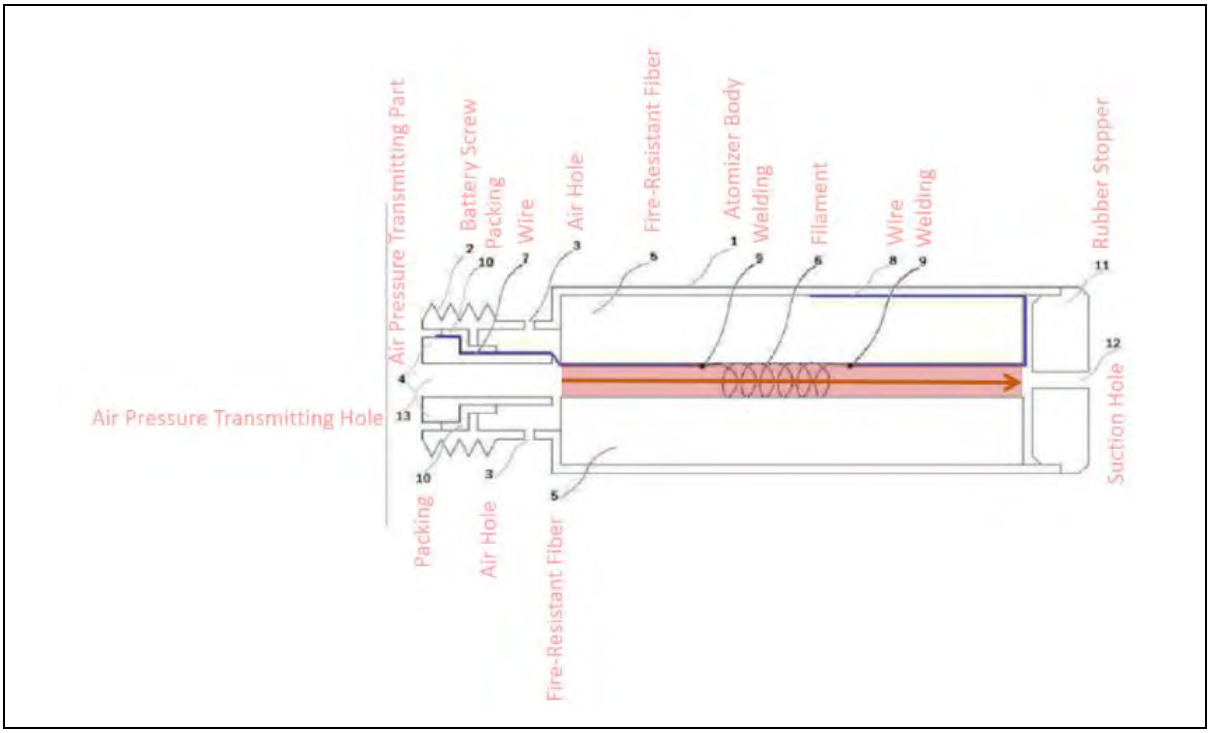
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will opine how the air flows through the cartridge when the first and second apertures are the air pressure transmission hole 13 and the suction hole 12, respectively:



See JX-0635 (Leinsing Opening Rpt., Appx. C) at ¶¶ 266.



See JX-0635 (Leinsing Opening Rpt., Appx. C) at ¶¶ 267.

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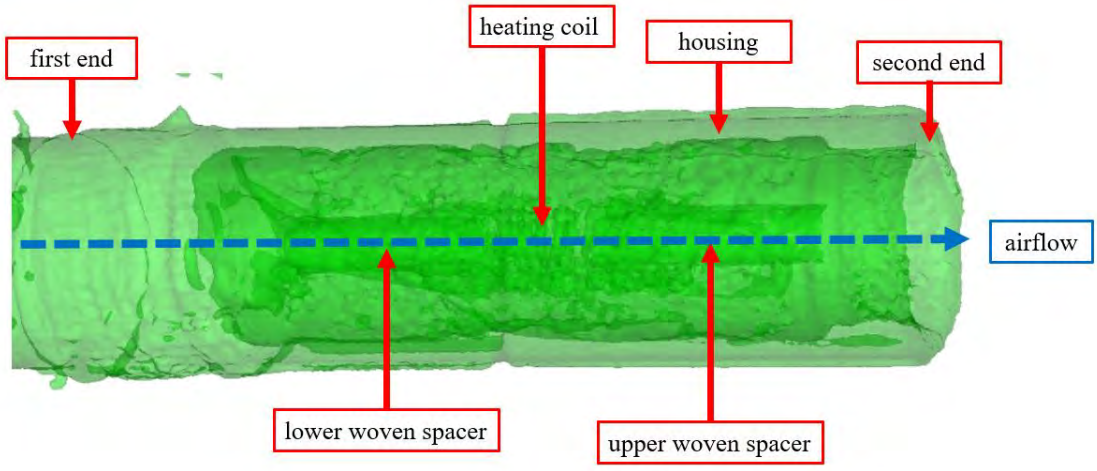
6. Red Dragon in view of Fang ’044 and Wang ’927 – ’864 Patent, Claim 1[d]

The evidence will show that Red Dragon in view of Fang ’044 and Wang ’927 discloses or renders obvious this limitation. *See* JX-0638 (Leinsing Opening Rpt., Appx. E) at ¶¶ 261-263; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 461-505; RX-0074 (Photos of Red Dragon Kit # 1); RX-0076 (Photos of Red Dragon Kit # 2); RX-1309 (Red Dragon Product 3 Piece Kit (Evans 2)); RX-0077 (CT scans of Red Dragon Kit #2); RX-0098 ([vg-project] Red Dragon - Cartridge_Pen Package.zip (Native)); RX-0099 ([vg-project] Red Dragon - Pen.zip (Native)); RPX-0009 (Red Dragon 3-Piece Kit); RPX-0010 (Red Dragon 3-Piece Kit (Sealed); JX-0595 (Fang ’044); JX-0594 (Wang ’927). NJOY and its expert do not dispute that the Red Dragon anticipates this claim limitation. *See* CX-2110 (Complainant’s First Sup. Validity Contentions (03/12/2024)) at 916-937; CX-2726C (Vallee Reb. Rpt.) at Appx. E, ¶ 114.

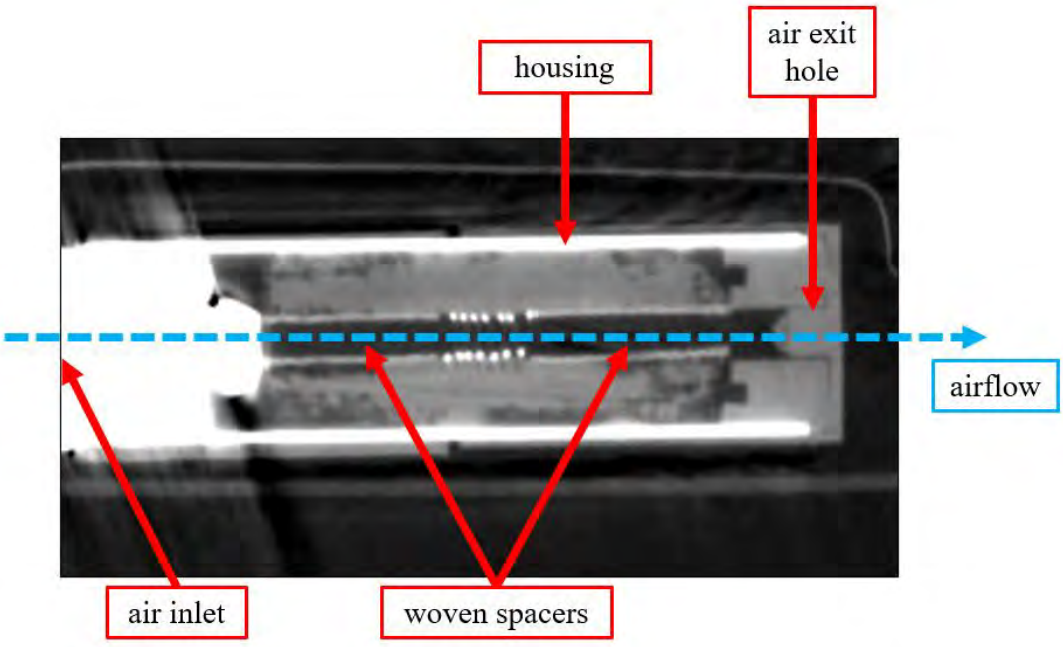
The evidence will show that communication between the air inlet and air exit hole permits airflow through the housing from the air inlet to the air exit hole. Specifically, a passageway formed by an upper woven spacer, a lower woven spacer, and a wicking material spanning between the woven spacers and around the heating coil, which itself is situated within an opening formed by the batting material in the housing of the cartomizer, form an area which air can flow through from the first aperture to the second aperture. *See, e.g.,* RX-0077 (CT Scans of Red Dragon Kit #2) at RX-0077.36 ; RX-0077 at RX-0077.22; *see also* JX-0638C (Leinsing Opening Rpt., Appx. E) at ¶¶ 261-263.

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See RX-0077 (Photos of Red Dragon Kit #2) at RX-0077.36 (annotated in red); *see also* JX-0638C (Leinsing Invalidity Rpt., Appx. E) at ¶ 262.



See RX-0077 (Photos of Red Dragon Kit #2) at RX-0077.22 (annotated in red and blue); *see also* JX-0638C (Leinsing Invalidity Rpt., Appx. E) at ¶ 262.

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7. Smoke Fifty-One Duo in view of Fang '044 and Wang '927 – '864 Patent, Claim 1[d]

The evidence will show that Smoke Fifty-One Duo in view of Fang '044 and Wang '927 discloses or renders obvious this limitation. *See* JX-0636C (Leinsing Opening Rpt., Appx. D) at ¶¶ 250-252; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 413-460; RX-0130C (Declaration of Yardimici); JX-0595 (Fang '044); JX-0594 (Wang '927). NJOY and its expert do not dispute that Smoke Fifty-One Duo anticipates this claim limitation. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 897-916; CX-2726C (Vallee Reb. Rpt.) at Appx. D, ¶ 71.

The evidence will show that communication between the air inlet and air exit hole permits airflow through the housing from the air inlet to the air exit hole. Specifically, a passageway formed by an upper woven spacer, a lower woven spacer, and a wicking material spanning between the woven spacers and around the heating coil, which itself is situated within an opening formed by the nicotine pad in the housing of the cartridge, form an area through which air can flow through the housing from the first aperture to the second aperture. *See, e.g.,* RX-0130C (Declaration of Yardimici) at RX-0130C.38; *see also* JX-0636C (Leinsing Opening Rpt., Appx. D) at ¶¶ 250-252.

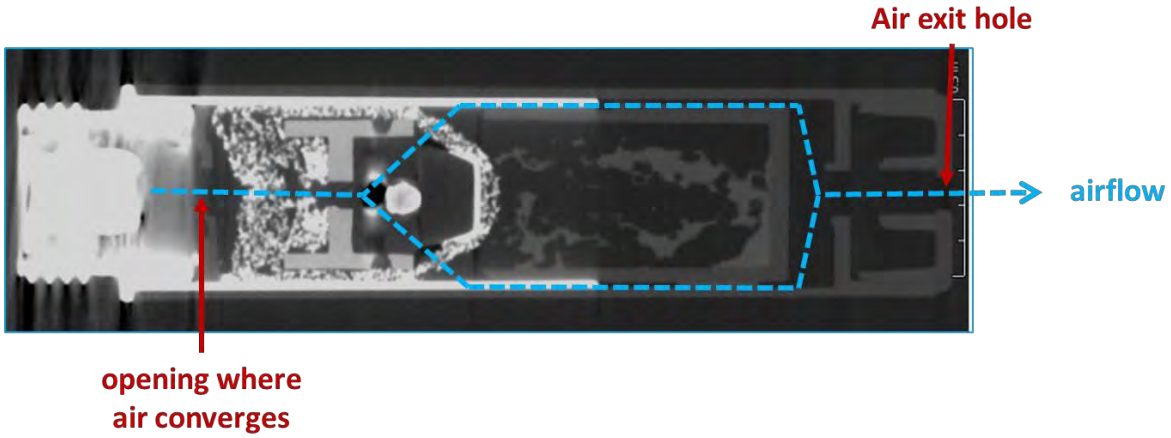
8. NJOY NPRO in view of Wang '554, Fang '044, and Wang '927 – '864 Patent, Claim 1[d]

The evidence will show that NJOY NPRO in view of Wang '554, Fang '044, and Wang '927 discloses or renders obvious this limitation. *See* JX-0640C (Leinsing Opening Rpt., Appx. G) at ¶¶ 259-261; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 548-612; RX-0082 (Photos of NJOY NPRO); JX-0404 (CT Scans of NJOY NPRO); RPX-0007 (NJOY NPRO Sample); RX-0095 (CT Scan Raw Data of NJOY NPRO); RX-0005 (Wang '554); JX-0595 (Fang '044). NJOY and its expert do not dispute that the NJOY NPRO discloses or renders obvious this claim limitation. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 963-980; CX-2726C (Vallee Reb. Rpt.) at Appx. G, ¶ 208.

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The evidence will show the first aperture proximate the left end of the housing is in communication with the second aperture proximate the right end of the housing, which allows air coming into the housing from the air intake hole and the side holes to converge and then flow to the second aperture. *See* JX-0640C (Leinsing Invalidity Rpt., Appx. G) at ¶¶ 259-261; JX-0632C (Leinsing Invalidity Rpt.) at ¶¶ 548-612; RX-0082 (Photos of NJOY NPRO); JX-0404 (CT Scans of NJOY NPRO); RPX-0007 (NJOY NPRO Sample); RX-0095 (CT Scan Raw Data of NJOY NPRO). Specifically, air comes in from the side holes of the NJOY NPRO converges at the first aperture and flows through the airflow passageway to reach the air exit hole to deliver the vaporized liquid solution to the user. *See, e.g.,* JX-0404 (CT Scans of NJOY NPRO) at JX-0404.11; *see also* JX-0640C (Leinsing Opening Rpt., Appx. G) at ¶¶ 259-261.



See JX-0404 (NPRO Photos) at JX-0404.11 (annotated in blue and red).

9. NJOY NCIG in view of Wang '554, Fang '044, and Wang '927 – '864 Patent, Claim 1[d]

For the same reasons why NJOY NPRO in view of Wang '554, Fang '044, and Wang '927 discloses or renders obvious this limitation, the NJOY NCIG in view of Wang '554, Fang '044, and Wang '927 also discloses or renders obvious this limitation. *See* JX-0632C (Leinsing Invalidity Rpt.) at ¶¶ 584-612; JX-0640C (Leinsing Invalidity Rpt., Appx. G) at ¶¶ 259-261; RPX-0006

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(NJOY NCIG Sample); RX-0084 (Photos of NJOY NCIG); JX-0402 (CT Scans of NJOY NCIG); RX-0090 (CT scan of NCIG); RX-0109C (NJOY NCIG User Guide); JX-0482C (NJOY Welcomes to the Tobacco Plus Expo 2009), JX-0482C.3.

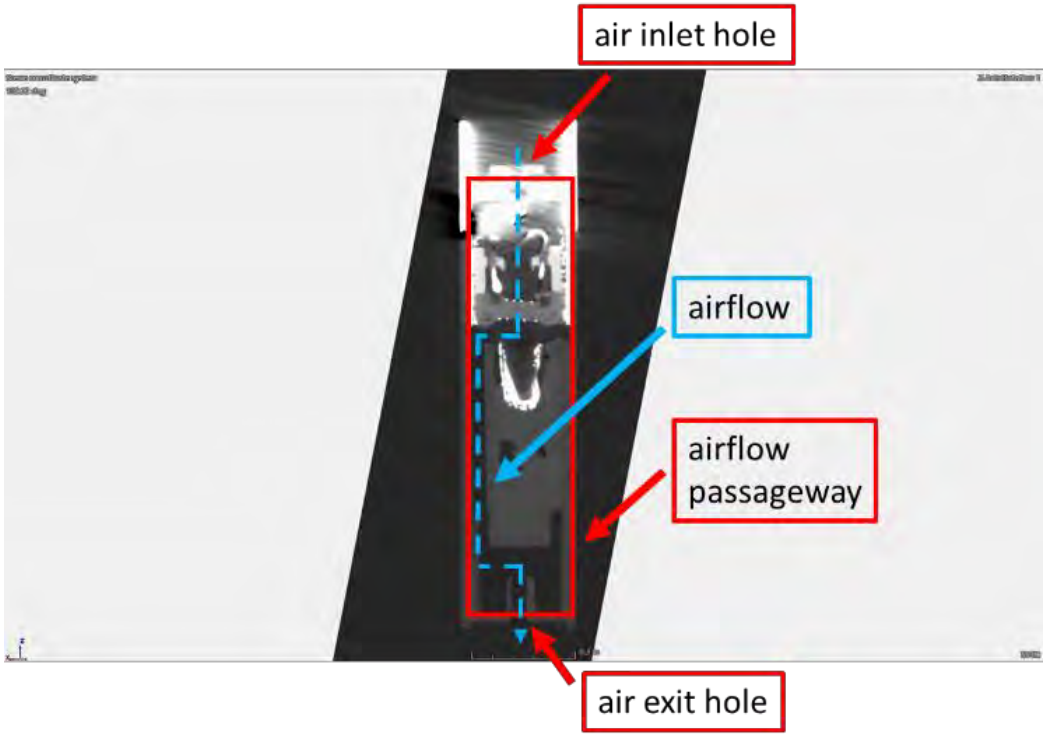
10. Cigarette Electronique – '864 Patent, Claim 1[d]

The evidence will show that Cigarette Electronique discloses or renders obvious this limitation. *See* JX-0639C (Leinsing Opening Rpt., Appx. F) at ¶¶ 307-309; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 506-547; RX-0072 (Photos of Cigarette Electronique); RPX-0011 (Cigarette Electronique Kit).. NJOY and its expert do not dispute that this limitation is met by the Cigarette Electronique. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 937-963; CX-2726C (Vallee Reb. Rpt.) at Appx. F, ¶ 167.

For example, Mr. Leinsing will opine that a POSITA would understand that the interior of the housing would contain air. The CT scan below shows that the housing extends from the first aperture of the housing to the second aperture of the housing; therefore, a POSITA would understand that the housing includes an airflow passageway from the first aperture of the housing to the second aperture of the housing. The airflow passageway allows an airflow from the first aperture to the second aperture.

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See JX-0401 (Photos of Cigarette Electronique) at JX-0401.5 (annotated in red and blue); *see also* JX-0639C (Leinsing Opening Rpt., Appx. F) at ¶¶ 307-308.

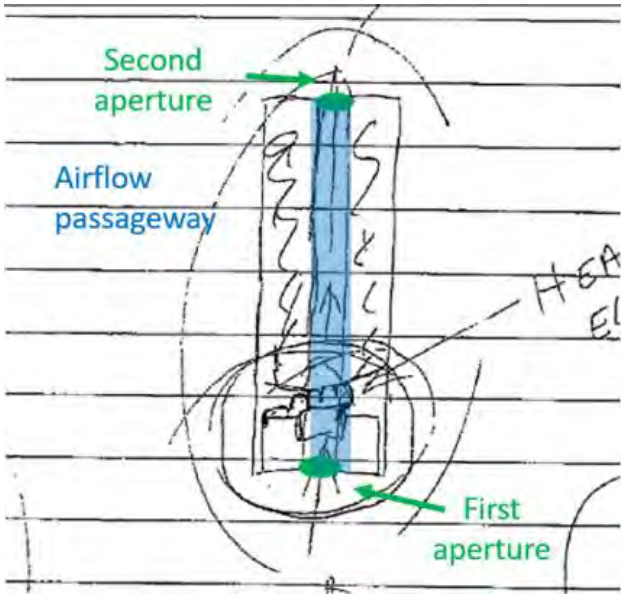
11. Fuma Prototype – '864 Patent, Claim 1[d]

The Evidence will show that the Fuma Prototype discloses this limitation. *See, e.g.,* Leinsing Opening Rpt., Appx. H) at ¶¶ 230-232; NJOY's 13th Supp. ROG Responses; RX-0078 (Photos of Fuma Starter Kit); RX-0079 (CT scans of Fuma Starter Kit).

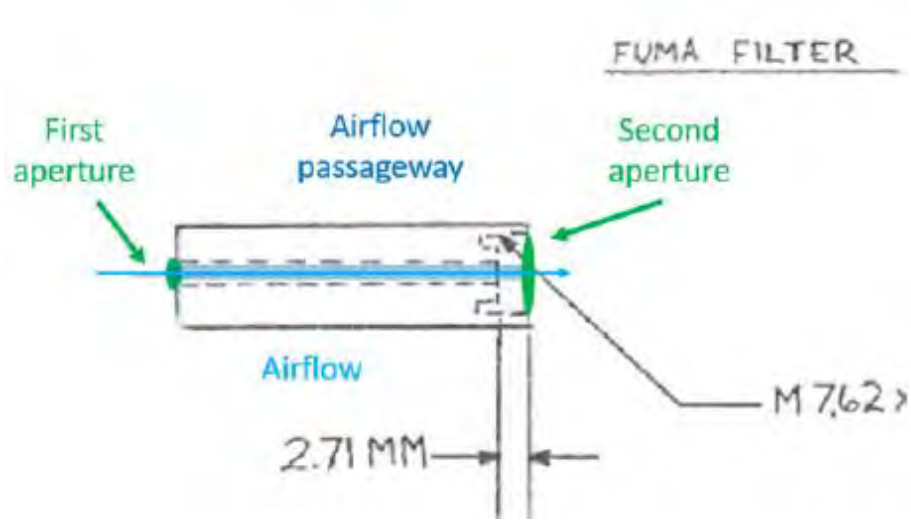
The first aperture and the second aperture being in communication with one another to permit an airflow through the housing from the first aperture to the second aperture. For example, communication between the air inlet and air exit hole permits airflow through the housing from the air inlet to the air exit hole.

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See '864 Priority Chart at 6 (citing CRTP Attachment C).



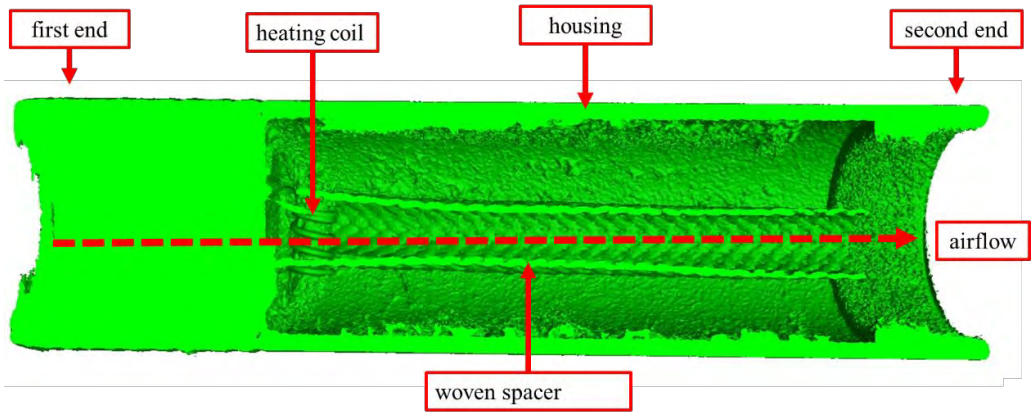
See '864 Priority Chart at 7 (citing CRTP Attachment E at FUMA-INSPECTION-0036).

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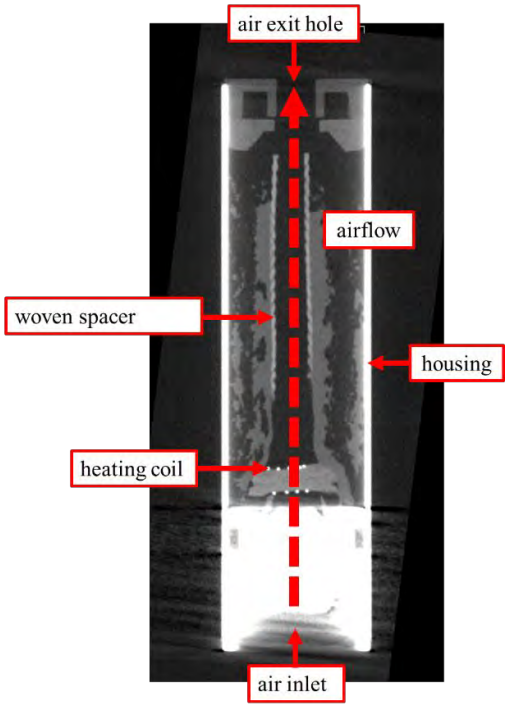
See '864 Priority Chart at 6 (citing CRTP Attachment D at Fig. 4).



See RX-0079 (CT scans of Fuma Starter Kit) at RX-0079.1 (annotated in red).

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See RX-0079 (CT scans of Fuma Starter Kit) at RX-0079.17 (annotated in red).

The inventor of the Asserted Patents further admitted that the Fuma Prototype discloses claim element 1(d). *See* Conley '864 Declaration at ¶5 (Independent claim 41 – Recitation 1). NJOY also admitted that the Fuma Prototype discloses claim element 1(d). *See* '864 Priority Chart at 6-7.

g. '864 Patent, claim 1[e]: "a heating element located in the interior of the housing, the heating element extending transversely to a central longitudinal axis of the housing and being at least partially exposed to the airflow"

The term "transversely" has been construed "to have its plain and ordinary meaning, that is, crosswise." Order No. 36 at 17.

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1. Xia ’610 in view of Wang ’554 and Fang ’044 and Smoke Fifty-One Duo– ’864 Patent, Claim 1[e]

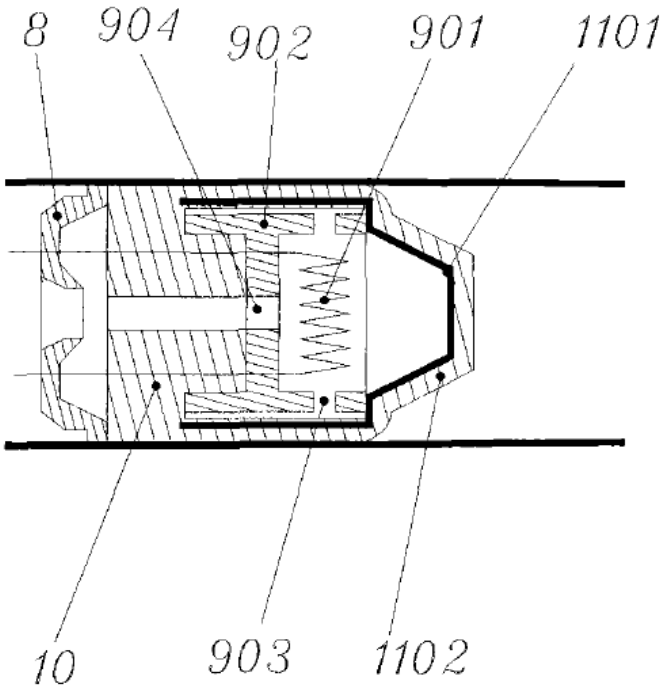
The evidence will show that Xia ’610 discloses or renders obvious, alone or in combination with Wang ’554 and Fang ’044 and Smoke Fifty-One Duo this limitation. *See* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 695-700; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 221-265; JX-0596 (Xia ‘610); JX-0595 (Fang ‘044); RX-0130C (Declaration of Yardimici). Complainant’s expert Dr. Vallee confirmed that Xia ’610 discloses a transverse heating coil. See, e.g., RX-1015C (Vallee 4/12/24 Tr.) at 321:1-8; 383:9-22.

For example, the heating coil 9 of Xia ’610, which is depicted as a coil, is shown oriented horizontally within the housing. JX-0596 (Xia ‘610) at Fig. 2; JX-0596 (Xia ‘610) at Fig. 4; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 695-97. As Mr. Leinsing will opine, a POSITA would understand that Xia ’610’s horizontally oriented heating coil is “crosswise” to the central longitudinal axis at least as NJOY interprets the claims and the central longitudinal axis (e.g., which can be a mere post-hoc annotation of an image of the accused device).

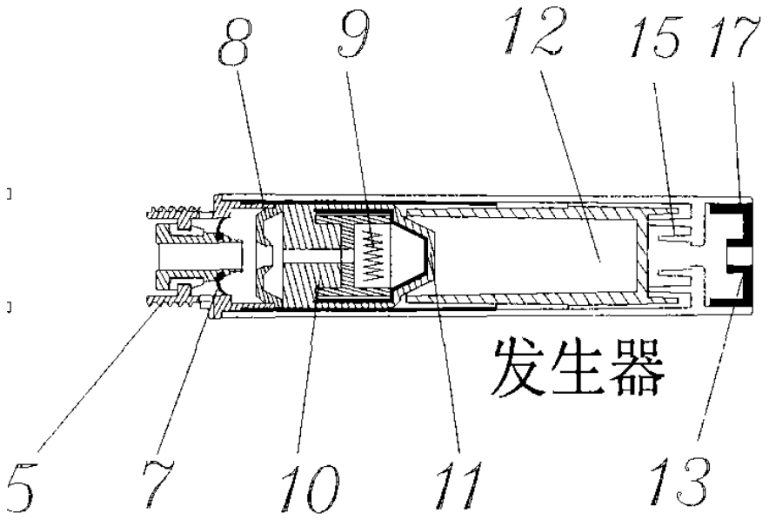
Xia ’610 illustrates the heater comprised of heating wire 901 for example in Figure 4, and the heater 9 in Figure 2:

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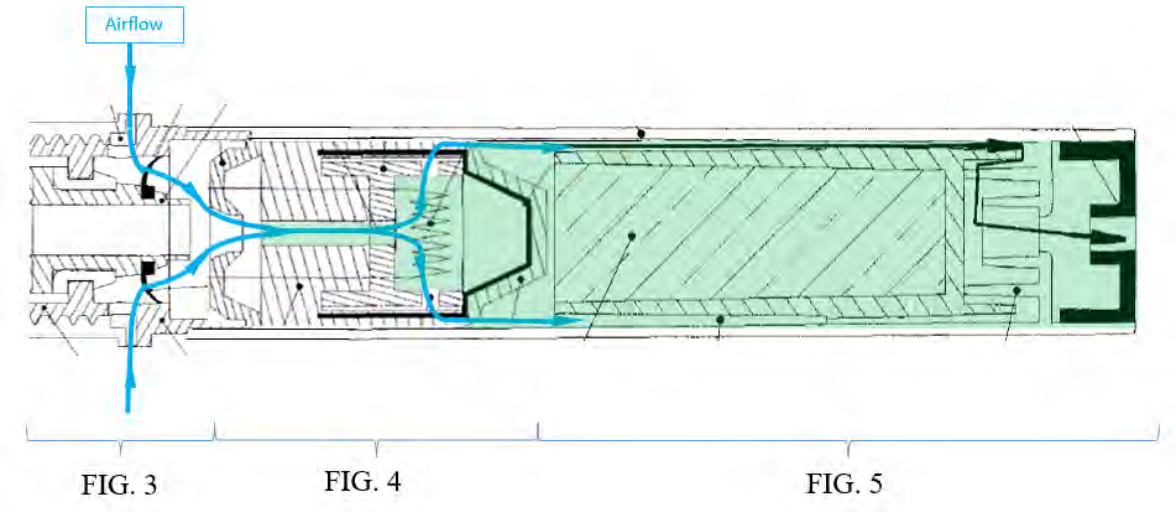
See JX-0596 (Xia '610) at FIG. 4; JX-0632C (Leinsing Opening Rpt.) at ¶ 260.



See Xia FIG. 2.

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See JX-0596 (Xia '610) at FIGs 3-5; JX-0632C (Leinsing Opening Rpt.) at ¶ 245.

Xia '610 explains that "heater 9 is powered by the rechargeable lithium battery 2 through the connecting conductor A5, the connecting conductor B6, and the integrated circuit board 3." JX-0596 (Xia '610) at JX-0596.10*; see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 698-700. Xia '610 describes the function of heater 9: "the heater 9 is wrapped with the liquid-guiding mechanism 11 (see Fig. 4)" and when a user sucks, "the vibrating diaphragm 7 vibrates, the electret microphone 4 also vibrates accordingly, after vibration is converted into a switching signal through a controller IC1 (see Fig. 6) on the integrated circuit board, the heater 9 starts working, the chemical liquid is instantly vaporized in an atomizing working room of the heater 9." JX-0596 (Xia '610) at JX-0596.10*; see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 258. Xia '610 explains that "heater 9 is switched on and off under the action of small airflow, that is, control over real-time heating of the heater is implemented." JX-0596 (Xia '610) at JX-0596.12*; see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 258. Xia '610 further explains that "a negative electrode of a lead-in wire for connecting the heater reaches the rechargeable lithium battery 2 via the integrated circuit board 3, and a positive electrode of the lead-in wire connected with the heater through two

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hollow columnar conductors 601, 603 reaches the rechargeable lithium battery 2 via the integrated circuit board 3." JX-0596 (Xia '610) at JX-0596.12*; see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 259.

Dr. Vallee has testified that Xia '610 includes a transverse heating coil. *See, e.g.,* RX-1015C (Vallee 4/12/24 Tr.) at320:15-25; 383:9-22. In Xia '610, the heating element is in an airflow passageway. *See, e.g.,* RX-1015C (Vallee 4/12/24 Tr.) at 383:2-7.

The evidence will also show that the airflow in Xia '610 goes around the heater:

> under the action of airflow, small droplets are sucked … through the spray hole 904 … Under the action of the heating wire 901, the liquid is instantly atomized, then flows out of the heater 9 from the overflow holes 903, then flows to the position of the soft suction nozzle 13 through the gap between the soft suction nozzle and the liquid storage chamber 12 as the airflow channel, and is finally sucked out through the soft suction nozzle 13.

JX-0596 (Xia '610) at JX-0596.13.

The heating wire and the liquid storage 10 serve as the claimed "heating element," at least as NJOY interprets the claims (e.g., allowing the heating and wicking parts of the heating element to be separate components).

2. Wang '554 in view of Xia '610 and Fang '044 and Smoke Fifty-One Duo – '864 Patent, Claim 1[e]

The evidence will show that Wang '554 discloses or renders obvious, alone or in combination with Xia '610 and Fang '044 and Smoke Fifty-One Duo this limitation. *See* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 701-705; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 267-295; RX-0005 (Wang '554); JX-0596 (Xia '610); JX-0595 (Fang '044); RX-0130C (Declaration of Yardimici).

Wang '554 discloses a heating coil. For example, Wang '554 discloses "a device that controls a battery to discharge through smoking motions, thereby driving an electric heater to generate heat." RX-0005 (Wang '554) at RX-0005.4; *see also* JX-0632C (Leinsing Opening Rpt.)

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at ¶ 290. Wang '554 further discloses an "electric pure cigarette comprises a cigarette holder part and a cigarette rod part" where the cigarette holder part includes an "electric heater." RX-0005 (Wang '554) at RX-0005.4; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 290. Wang '554 additionally discloses "the electric heater 104 of the cigarette holder match with those of the battery 110 of the cigarette rod, which may be realized by a heating wire, a metal coated film, a carbon film and other ways." RX-0005 (Wang '554) at RX-0005.7; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 290. Wang '554 discloses in its "working sequence" that "the control circuit board 113 drives the heater 104 connected together through terminals to work, at the same time, the airflow reaches the internal gap of the cigarette holder through the air outlet 108 of the cigarette rod and the air inlet 106 of the cigarette holder, and the smoke generated by the tobacco extract 103 instantly heated by the heater 104 is partially sucked out from the air outlet 101 of the cigarette holder." RX-0005 (Wang '554) at RX-0005.8; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 290.

The heating coil in combination with the portion of the organic fiber near it serve as the claimed "heating element," at least as NJOY interprets the claims (e.g., allowing the heating and wicking parts of the heating element to be separate components).

For example, the evidence will show that Wang '554 also discloses "a capsule jacket and a capsule evaporator" where "the capsule jacket is a jacket of a disposable capsule cigarette holder, consisting of a shell 201, a filter rod 202, a soft capsule 204 and a tobacco extract 203" and "the capsule evaporator is an evaporator of the disposable capsule cigarette holder, consisting of a shell 205, an organic fiber 208, an ejector pin 206, an electric heater 207, an air inlet 209, and an input end 210." RX-0005 (Wang '554) at RX-0005.8; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 291. Wang '554 further discloses when "the ejector pin 206" punctures "the soft capsule 204" "the

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tobacco extract 203 in the soft capsule 204 flows into an adsorption fiber 208, and with the starting of the electric heater 207, the tobacco extract 206 is atomized." RX-0005 (Wang '554) at RX-0005.9; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 291.

To the extent that Wang '554 does not disclose a heating element that extends "transversely," Mr. Leinsing will opine it would be obvious to a POSITA to modify Wang '554 such that the heating element as a whole would be oriented horizontally or across the center axis of the flow path. *See* JX-0632C (Leinsing Opening Rpt.) at ¶ 292. This horizontal coil arrangement results in a shorter coil that results in lower resistance (ohms) that results in quicker and higher heat that results in more vapor quicker to the user for an improved experience because time = (heat * resistance)/volts^2. Additionally, for example, this would increase the surface area of the heater that comes into contact with the airflow. This creates better heat transfer, as a POSITA would know that a perpendicular arrangement has different heat transfer properties than an aligned arrangement. A horizontal arrangement also changes how the air flows past and over the coil, becoming more turbulent, as opposed to air flowing through the center of a coil, which can be more laminar. Many e-cigarette designs used horizontally oriented coils.

For example, the evidence will show that a horizontal orientation is somewhat more natural of an orientation for a heated coil (such as in traditional lightbulbs) because it simplifies manufacturing. This horizontal coil arrangement results in a shorter coil that results in lower resistance (ohms) that results in quicker and higher heat that results in more vapor quicker to the user for an improved experience. Additionally, for example, having the coil arranged horizontally simplifies the engineering needed for the power supply wires. In an aligned arrangement, the terminal end of the coil needs to have a power supply wire connecting back to the electrical connector to the battery double back past the coil. Care must be taken to not have the doubling

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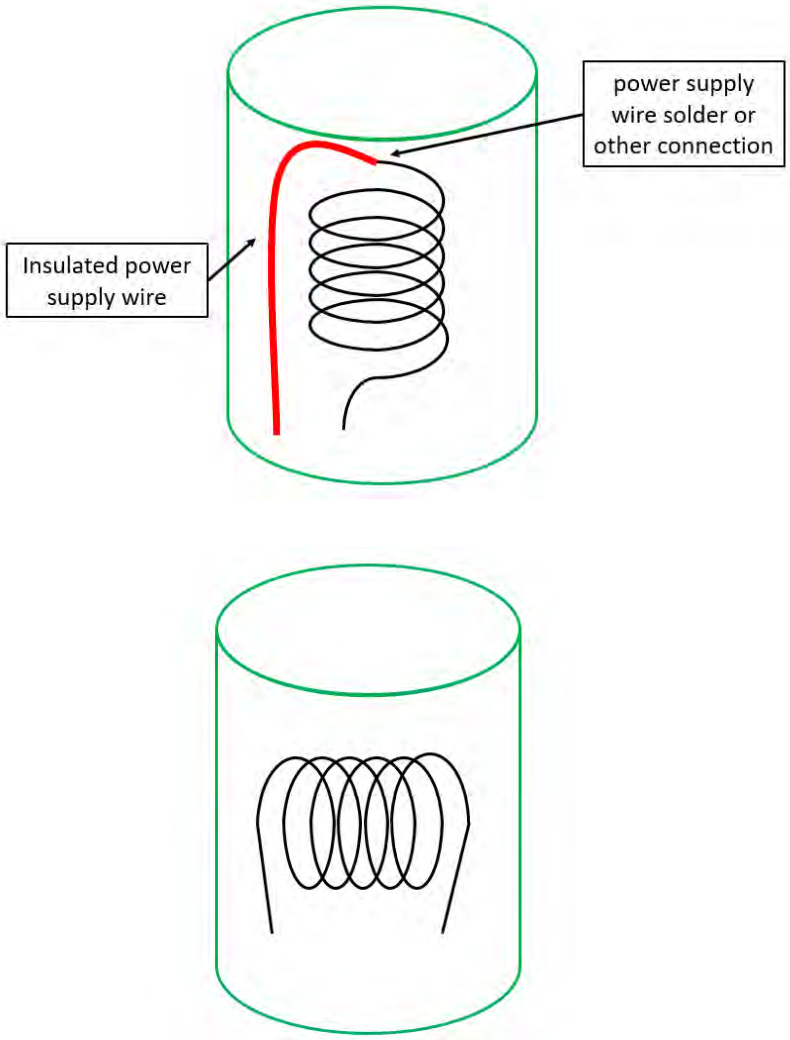
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back power supply wire create a short circuit with the coil as it doubles back, requiring that it be electrically insulated. Generally, electrical insulation on wires can be toxic, so is not desirable to include in or near the airflow passageway. Additionally, the requirement for additional power supply wires means that there needs to be a soldering or other connection between the coil wire and the power supply wire, which increases complexity and therefore cost of manufacture. Additionally, the heating coil wire will likely have a high resistance (so that it heats when powered), making it undesirable to have the heating coil itself double back toward the battery for any extended length, as it increases the overall resistance of the circuit, but also because it will also heat up. By contrast, having a horizontal arrangement of the coil allows for the reduction in length or even possibly the elimination of the power supply wires, for example because the heating coil could simply be press-fit into conductive slots during assembly (like was known in the art, such as in Fang '044). In doing so, Mr. Leinsing will opine that a POSITA would have been motivated to have the heating element extend across the airflow passageway from one point on the side surface of the airflow passageway to a second point on the side surface the airflow passageway and the second point is across the first point. *See* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 293. This is because it can retain as much length as possible without unnecessarily increasing the size of the airflow passageway.

For example, Mr. Leinsing's report included the following images:

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[redacted]



See JX-0632C (Leinsing Opening Rpt.) at ¶ 294.

In addition to being motivated to modify Wang '554 to have a horizontally-oriented coil based on their knowledge and skill, Mr. Leinsing will opine that a POSITA would be motivated to modify Wang '554 to have a horizontally-oriented coil in view of Xia '610 and/or Fang '044 and/or Smoke Fifty-One Duo. *See* JX-0632C (Leinsing Opening Rpt.) at ¶ 295. For example, both Xia '610 and Fang '044 disclose the use of a horizontally-oriented coil, as described with respect to each of those references. A POSITA therefore could have substituted the heating coil and related

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support from either Xia ’610 (such as incorporating Xia’s “working room” components such as liquid guiding mechanism 11, support frame 1101, and liquid guiding body 1102) or Fang ’044 (such as Fang ’044’s similar components like the temporary oil storage device 15 and the electric heating film wire 16 would thereon), given the motivations do to so described above.

3. Fang ’044 in view of Xia ’610 and Wang ’554 and Smoke Fifty-One Duo – ’864 Patent, Claim 1[e]

The evidence will show that Fang ’044 discloses or renders obvious, alone or in combination with Xia ’610 and Wang ’554 and Smoke Fifty-One Duo this limitation. *See* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 706-709; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 296-321; JX-0595 (Fang ‘044); JX-0596 (Xia ‘610); RX-0005 (Wang ‘554); RX-0130C (Declaration of Yardimici). Complainant’s expert Dr. Vallee confirmed that Fang ’044 discloses a transverse heating coil. See, e.g., RX-1015C (Vallee 4/12/24 Tr.) at 321:9-322:1.

For example, the evidence will show that Fang describes and illustrates “electric heating film wire 16” as a heating coil that is oriented horizontally with respect to the central longitudinal axis of the housing at least as NJOY interprets the claims and the central longitudinal axis (e.g., which can be a mere post-hoc annotation of an image of the accused device), which is “crosswise”:

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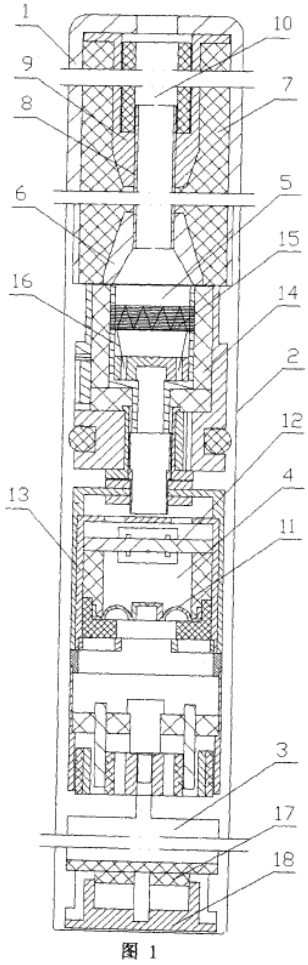


图 1

See JX-0595 (Fang '044) at FIG. 1; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 709.

Fang '044 discloses the use of an electric heating film wire within a "fuming device" chamber of the e-cigarette: "the electric heating film wire 16 is wound on the temporary oil storage device 15, and the electric heating film wire 16 is electrically connected with the battery 3 through the fuming device control switch 4." JX-0595 (Fang '044) at JX-0595.5; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 319. Fang '044 illustrates the heating wire in figures 1 and 2:

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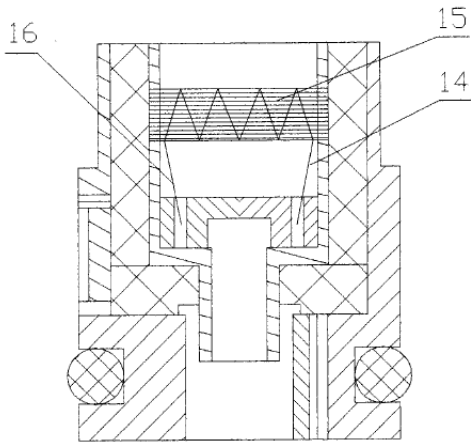


图 2

See JX-0595 (Fang '044) at FIG. 2; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 319.

The heating wire 16 and temporary oil storage device together serve as the claimed "heating element" at least as NJOY interprets the claims (e.g., allowing the heating and wicking parts of the heating element to be separate components).

Dr. Vallee has testified that Fang '044 includes a transverse heating coil. RX-1015C (Vallee 4/12/24 Tr.) at 321:9-322:1.

4. Wang '927 in view of Wang '554 and NPRO Style – '864 Patent, Claim 1[e]

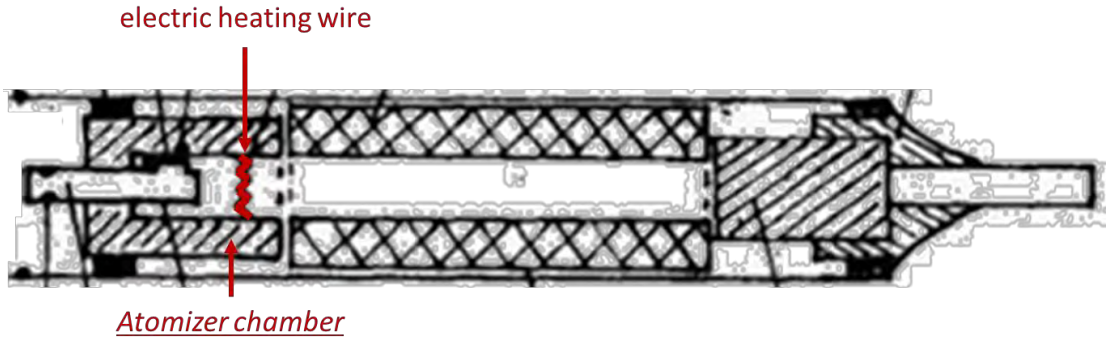
The evidence will show that Wang '927 discloses or renders obvious, alone or in combination with Wang '554 and NPRO Style this limitation. *See* JX-0634 (Leinsing Opening Rpt., Appx. B) at ¶¶ 262-263; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 323-356; JX-0594 (Wang '927); RX-0005 (Wang '554); RX-0080 (Photos of NPRO Style); RPX-0008 (Physical sample of NPRO Style); JX-0405 (CT Scans of NPRO Style); RX-0094 (Raw CT Scan of NPRO Style). NJOY and its expert do not dispute that this limitation is met by Wang '927. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 784-793; CX-2726C (Vallee Reb.

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Rpt.) at Appx. B, ¶ 192. Complainant's expert Dr. Vallee confirmed that Wang '927 discloses a transverse heating coil. See, e.g., RX-1015C (Vallee 4/12/24 Tr.) at 320:10-13.

For example, the evidence will show that Wang '927 discloses a heating element. JX-0594 (Wang '927) at Fig. 1 and JX-0594.1-5 4; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 356. For example, Wang '927 discloses the electric heating wire 9 that generates heat to vaporize tobacco juice for a user to inhale. JX-0594 (Wang '927) at JX-0594.1("An air intake switch is connected to a heater switch, and a power supply of a heater is controlled by the air intake switch to be turned on and off, and air carries heat to vaporize tobacco juice in the tobacco juice bin."), JX-0594.3 ("The heater can be an electric heating wire or can conduct heating using a microwave principle."), JX-0594.5 ("When the air intake switch 7 is opened, it is connected to the switch contact 8, a power supply of the electric heating wire 9 is turned on, and the electric heating wire 9 generates heat. Air carries heat generated by the electric heating wire 9, causing tobacco juice filled into the fiber filler in the tobacco juice bin 13 to vaporize to form smoke."); *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 356. Under NJOY's interpretation, the heating element can include additional non-heating components, such as the atomizer holder.



See JX-0594 (Wang '927) at Fig. 1 (cropped to only show the tail end) (annotated in red) ; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 356.

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The electric heating wire and the atomizer holder together serve as the claimed "heating element," at least as NJOY interprets the claims (e.g., allowing the heating and wicking parts of the heating element to be separate components). The electric heating wire extends crosswise to a central longitudinal axis of the housing at least as NJOY interprets the claims and the central longitudinal axis (e.g., which can be a mere post-hoc annotation of an image of the accused device).

Dr. Vallee has testified that Wang '927 includes a transverse heating coil. *See* RX-1015C (Vallee 4/12/24 Tr.) at 320:10-13.

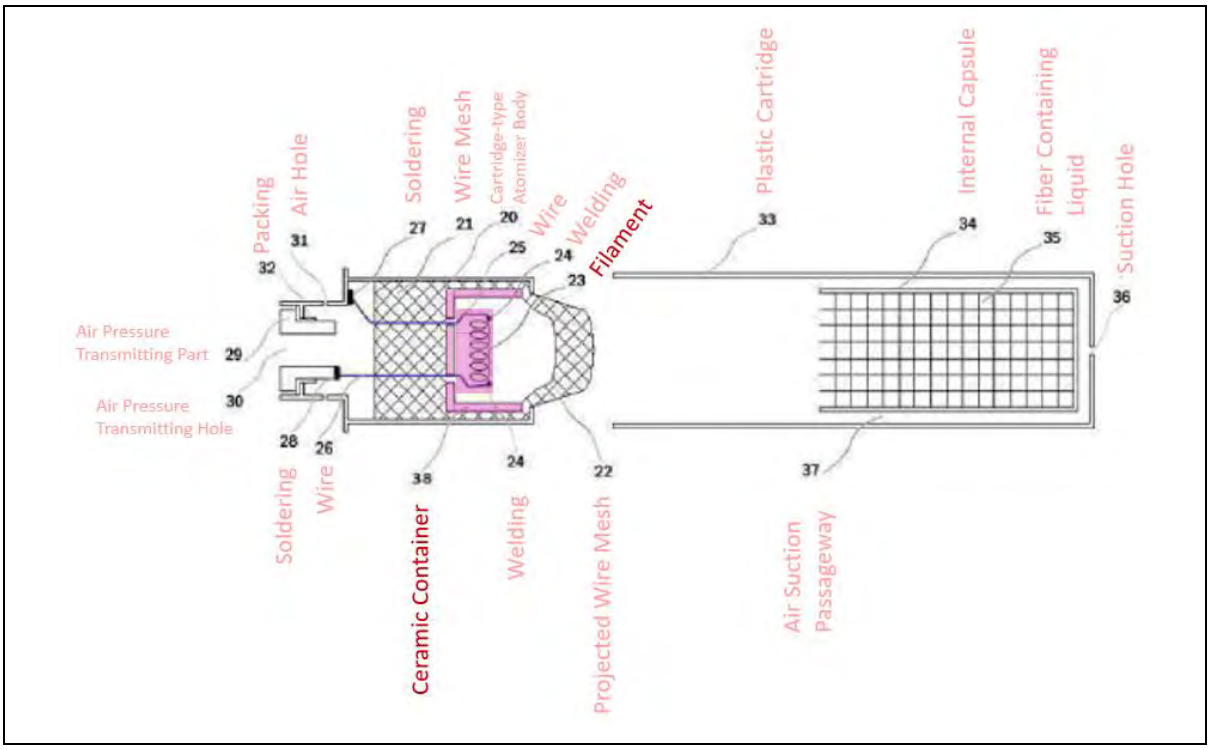
5. Han '364 in view of Fang '044 and NPRO Style – '864 Patent, Claim 1[e]

The evidence will show that Han '364 in view of Fang '044 and NPRO Style discloses or renders obvious this limitation. *See* JX-0635 (Leinsing Opening Rpt., Appx. C) at ¶¶ 270-273; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 357-403.

For example, Han '364 discloses two embodiments of a heating filament, both of which are oriented within the airflow passageway. *See, e.g.,* JX-0631 (Han '364 certified English Translation) at FIGs. 1, 8; *see also* JX-0635 (Leinsing Opening Rpt., Appx. C) at ¶ 271. Han '364 also discloses that both filament 6 and filament 23 span the entire diameter of the airflow passageway, thereby being oriented crosswise within the airflow passageway. *See* JX-0631 (Han '364) at [0014]; *see also id.*, at FIG. 8 (annotated in pink); JX-0632C (Leinsing Opening Rpt.) at ¶ 387:

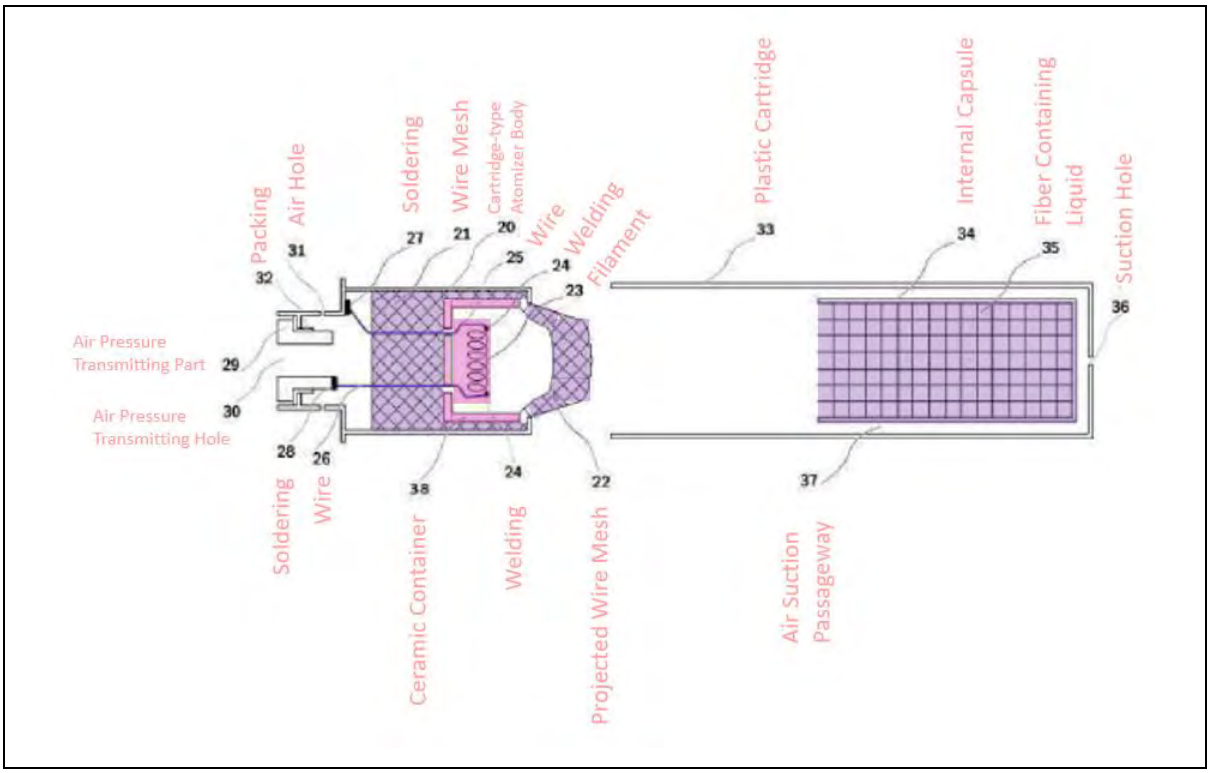
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Filament 23 is also surrounded by various materials that store and wick solution, including wire mesh 21 and projecting wire mesh 22. Leisnsing Rpt. ¶ 388. Heating filament 23 in combination with ceramic container 38 serve as a claimed "heating element" at least as NJOY interprets the claims (e.g., allowing the heating and wicking parts of the heating element to be separate components). For example, when plastic cartridge 33 is affixed to atomizer body 20, fiber containing liquid 35 (located within capsule 34) is pressed against projecting wire mesh 22. *See id.*, at [0014]. Projecting wire mesh 22 then draws solution from fiber containing liquid 35. *See id.* The solution in fiber containing liquid 35 is then drawn to wire mesh 21. *See id; see also id.*, at FIG. 8 (annotated):

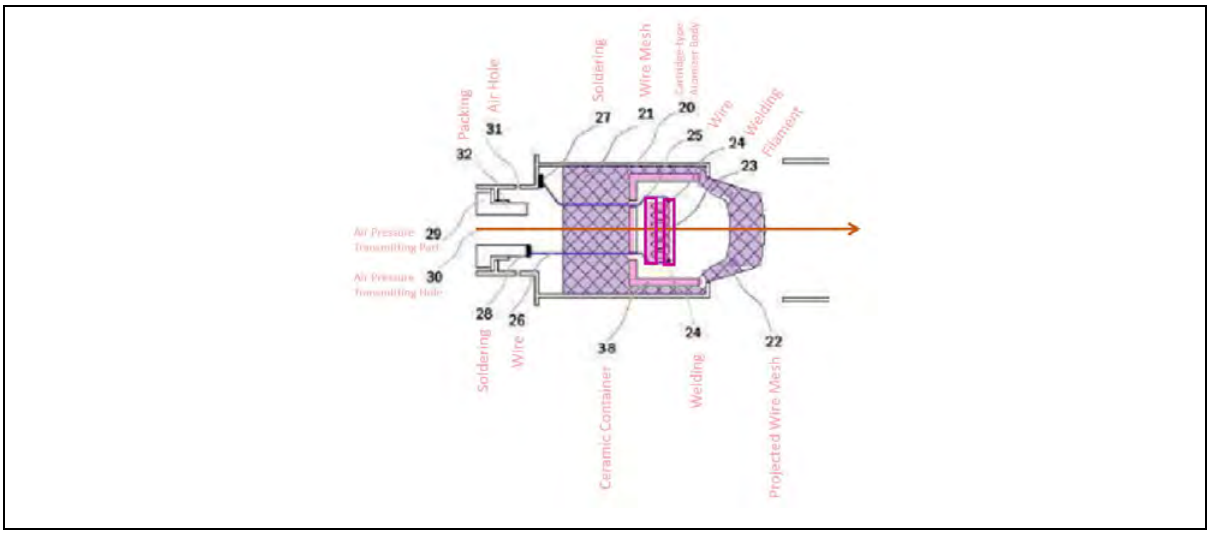
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Ceramic container 38 draws solution from wire mesh 21, such that the solution is drawn close enough to the filament 23 for the filament 23 to output heat to vaporize nearby solution. *See id.* The vapor is then drawn out of the device through suction hole 36 (shown above). *See id.*, at [0014].

As annotated below with an orange arrow, airflow through the cartridge would flow perpendicular to filament 23, passing over portions of the filament 23 annotated with pink boxes. *See id.* at FIG. 8 (annotated):

[redacted]



At least under NJOY's interpretation of the claims and the central longitudinal axis (e.g., which can be a mere post-hoc annotation of an image of the accused device), filament 23 is crosswise to a central longitudinal axis of the housing.

6. Red Dragon in view of Fang '044 and Wang '927 – '864 Patent, Claim 1[e]

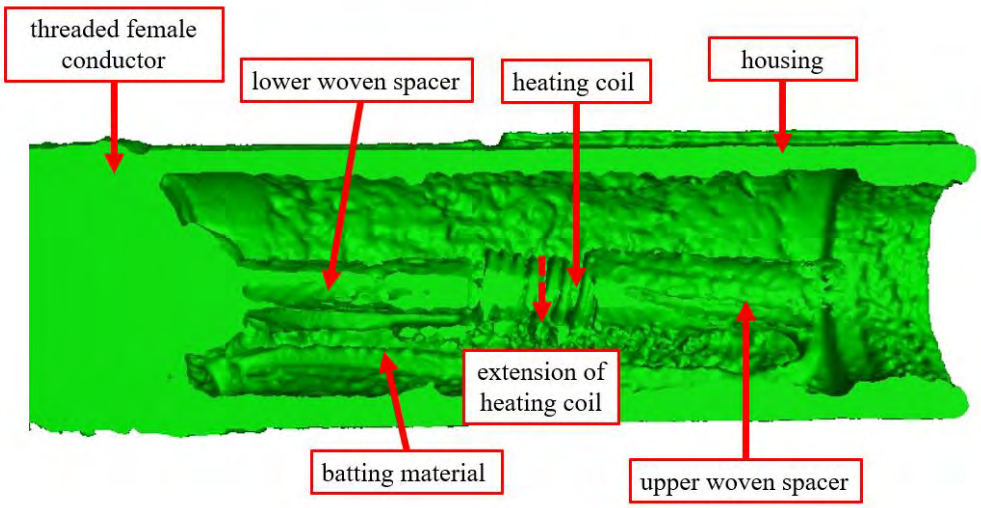
The evidence will show that Red Dragon in view of Fang '044 and Wang '927 discloses or renders obvious this limitation. *See* JX-0638 (Leinsing Opening Rpt., Appx. E) at ¶¶ 264-268; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 461-505; RX-0074 (Photos of Red Dragon Kit # 1); RX-0076 (Photos of Red Dragon Kit # 2); RX-1309 (Red Dragon Product 3 Piece Kit (Evans 2)); RX-0077 (CT scans of Red Dragon Kit #2); RX-0098 ([vg-project] Red Dragon - Cartridge_Pen Package.zip (Native)); RX-0099 ([vg-project] Red Dragon - Pen.zip (Native)); RPX-0009 (Red Dragon 3-Piece Kit); RPX-0010 (Red Dragon 3-Piece Kit (Sealed); JX-0595 (Fang '044); JX-0594 (Wang '927).

The housing of the Red Dragon includes a heating coil located in the interior of the housing extending crosswise to a central longitudinal axis of the housing and at least partially exposed to the airflow. *See, e.g.,* RX-0077 (CT Scans of Red Dragon Kit #2) at RX-0077.38; RX-0077 at RX-

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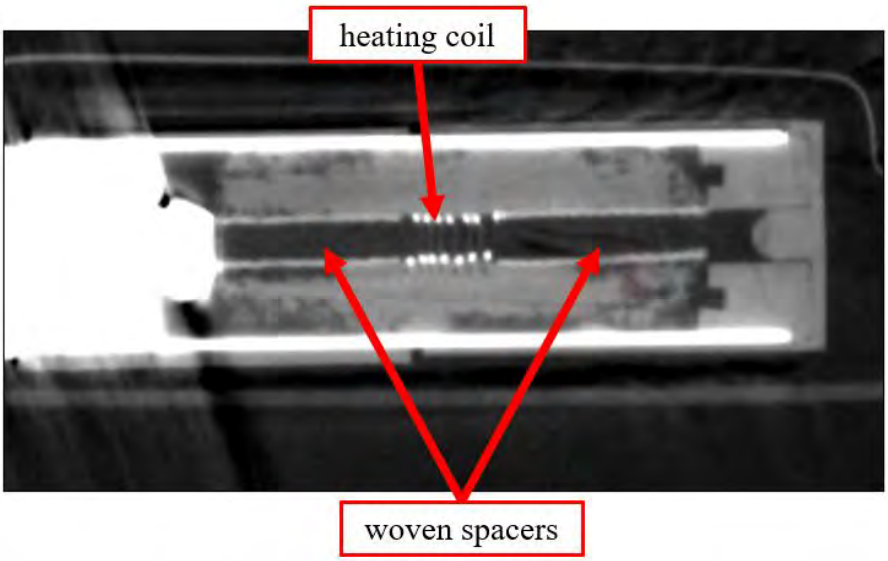
0077.22 ; *see also* JX-0638C (Leinsing Opening Rpt., Appx. E) at ¶¶ 264-268. Further, the heating coil is in contact with and surrounded by the wicking material portion of the airflow passageway, and thus spans from one inner surface(s) of the airflow passageway to the opposite inner surface(s) of the airflow passageway. *Id.* Therefore, the heating coil in combination with the wicking material serve as the claimed "heating element" at least as NJOY interprets the claims (e.g., allowing the heating and wicking parts of the heating element to be separate components).



See RX-0077 (Photos of Red Dragon Kit #2) at RX-0077.38 (annotated in red); *see also* JX-0638C (Leinsing Invalidity Rpt., Appx. E) at ¶ 265.

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See RX-0077 (Photos of Red Dragon Kit #2) at RX-0077.22 (annotated in red); *see also* JX-0638C (Leinsing Invalidity Rpt., Appx. E) at ¶ 265.

NJOY contends that the Red Dragon's heating coil does not extend "transversely" because "it is axially oriented." Specifically, NJOY contends "the length of the coil (as well as its axis) is more aligned with, and parallel to, the cartridge housing's central longitudinal axis." *See* JX-0638 (Leinsing Opening Rpt., Appx. E) at ¶ 117-119. Mr. Leinsing will opine that such a modification would have been obvious and beneficial given the knowledge of a person of ordinary skill in the art. For example, as described with respect to Wang '554, a person of ordinary skill in the art would have been motivated to modify the Red Dragon with the horizontal coil orientation disclosed in Fang '044 or Wang '927 because such an orientation has several benefits including simplified manufacturing, lower resistance (ohms) that results in quicker and higher heat, and simplified engineering needed for the power supply wires. *See, e.g.,* JX-0638C (Leinsing Opening Rpt., Appx. E) at ¶¶ 266-268. NJOY argues that rotating the heating coil would not work, including because the coil would not fit wholly within the airflow passageway, but ignores that the heating coil does not need to stop at the boundaries of the airflow passageway, and indeed can extend into

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the batting material, as a POSITA would know. For example, the Fuma Prototype's coil, which is horizontal, extends into the batting material, demonstrating that this was not a design requirement at the time. *See, e.g.,* RX-0079 at JLI-ITC1372_00980739. Dr. Vallee has asserted that the heating coil would not fit in the airflow passageway if rotated to be perpendicular to the longitudinal axis. However, the Fuma prototype, which Dr. Vallee asserts practices the claims, has a heating coil that is perpendicular to the longitudinal axis, and extends into the batting material—beyond the airflow passageway—demonstrating that this was not a problem and would not have prevented a POSITA from making such a configuration. *See, e.g.,* RX-0079 at JLI-ITC1372_00980739.

Mr. Leinsing will testify that NJOY's assertions that changing the orientation of a heating element to be horizontal relative to an airflow passageway/the central longitudinal axis of the housing would increase manufacturing complexity and cost are incorrect. JX-0632C (Leinsing Opening Rpt.) at ¶ 501. Horizontal coils actually reduce manufacturing complexity and cost by reducing extra wiring needed to connect both ends of the coil to electrical contacts at the conductor portion of the cartridge, reducing or even eliminating the need to solder wires (which is a significant cost to manufacturing heating coils) because the coil ends can be friction fitted in the e-cigarette device (e.g., such as between the metal and rubber part of the first end of the cartridge, locked into grooves in the metal parts of the thread area, or other known configurations), and other reasons as discussed throughout my report. Further, horizontal coils could in fact vaporize liquid more quickly, e.g., due to Ohms Law and properties of heating coils allowing for lower resistance for a horizontal coil, resulting in faster heating and quicker vaporization of e-liquid solution.

NJOY's assertions that a transverse heating element would not increase the surface area of the coil exposed to the airflow are also incorrect. JX-0632C (Leinsing Opening Rpt.) at ¶ 502. For example, a coil positioned against the inner surface of an airflow passageway would not be exposed

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to air; only the inner portions of the coil would be exposed to air. In contrast, a coil positioned horizontally within the airflow passageway would have both the inner and outer portions of the coil potentially exposed to air. This would necessarily allow for more of the surface area of the coil to be exposed to air as air flows through the airflow passageway on a per coil basis. Even if the coil itself is modified to be shorter than the coil as it was situated in a vertical orientation, the exposure of all portions of the coil, rather than only the inner portions of the coil, would increase the relative surface area of the coil that is exposed to air to help compensate for the change to a horizontal shorter coil. This would result in the benefits of quicker vaporization.

Further, to the extent there are any other considerations involved in configuring a heating coil in an e-cigarette to extend horizontally within the device, such considerations would have been well-known to a POSITA at the time of the alleged invention, as both horizontal and heating coils were well known at the time of the invention. JX-0632C (Leinsing Opening Rpt.) at ¶ 503. For example, Fang '044, Han '364, Wang '927, NJOY NPRO, NJOY NCIG, and other prior art all disclosed horizontal heating coils at the time of the alleged invention. Thus, to the extent NJOY contends that a POSITA would not have been motivated to include a horizontally-oriented coil in an e-cigarette device due to purported limitations of horizontally-oriented heating coils, a POSITA would have already understood the benefits and limitations of both horizontally and vertically-oriented coils. Selecting one orientation over the other would have, therefore, been a design choice based on the needs of the POSITA designing an e-cigarette device. JX-0632C (Leinsing Opening Rpt.) at ¶ 503.

Dr. Vallee has admitted that the Red Dragon included an airflow passageway and heating element. RX-1015C (Vallee 4/12/24 Tr.) at 297:24-298:9.

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7. Smoke Fifty-One Duo in view of Fang '044 and Wang '927 – '864 Patent, Claim 1[e]

The evidence will show that Smoke Fifty-One Duo in view of Fang '044 and Wang '927 discloses or renders obvious this limitation. *See* JX-0636C (Leinsing Opening Rpt., Appx. D) at ¶¶ 253-259; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 413-460; RX-0130C (Declaration of Yardimici); JX-0595 (Fang '044); JX-0594 (Wang '927).

The housing of the Smoke Fifty-One Duo includes a heating coil located in the interior of the housing extending crosswise to a central longitudinal axis of the housing and at least partially exposed to the airflow. *See, e.g.,* RX-0130C (Declaration of Yardimici) at RX-0130C.38; RX-0130C (Yardimici Declaration) at RX-0130C.68; *see also* JX-0636C (Leinsing Opening Rpt., Appx. D) at ¶¶ 253-255. Further, the heating coil is in contact with and surrounded by the wicking material portion of the airflow passageway, and thus spans from one inner surface(s) of the airflow passageway to the opposite inner surface(s) of the airflow passageway. *Id.* Therefore, the heating coil in combination with the wicking material serve as the claimed "heating element" at least as NJOY interprets the claims (e.g., allowing the heating and wicking parts of the heating element to be separate components).

NJOY contends that the Smoke Fifty-One Duo's heating coil does not extend "transversely" because "it is axially oriented." Specifically, NJOY contends "the length of the coil (as well as its axis) is more aligned with, and parallel to, the cartridge housing's central longitudinal axis." *See* CX-2726C (Vallee Reb. Rpt.) at Appx. D, ¶ 160. Mr. Leinsing will opine that such a modification would have been obvious and beneficial given the knowledge of a person of ordinary skill in the art. For example, as described in Section IV.G.1.xiii.a.4 (Motivation to combine references – Red Dragon), a person of ordinary skill in the art would have been motivated to modify the Smoke Fifty-One Duo heating coil with the horizontal coil orientation disclosed in

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Fang ’044 or Wang ’927. *See, e.g.,* IV.G.1.xiii.a.4 (Motivation to combine references – Red Dragon); *see also* JX-0636C (Leinsing Opening Rpt., Appx. D) at ¶¶ 256-259.

Dr. Vallee has admitted that the Smoke Fifty-One Duo included an airflow passageway and heating element. RX-1015C (Vallee 4/12/24 Tr.) at 297:24-298:9.

8. NJOY NPRO in view of Wang ’554, Fang ’044, and Wang ’927 – ’864 Patent, Claim 1[e]

The evidence will show that NJOY NPRO in view of Wang ’554, Fang ’044, and Wang ’927 discloses or renders obvious this limitation. *See* JX-0640C (Leinsing Opening Rpt., Appx. G) at ¶¶ 262-266; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 548-612; RX-0082 (Photos of NJOY NPRO); JX-0404 (CT Scans of NJOY NPRO); RPX-0007 (NJOY NPRO Sample); RX-0095 (CT Scan Raw Data of NJOY NPRO); RX-0005 (Wang ’554); JX-0595 (Fang ’044).

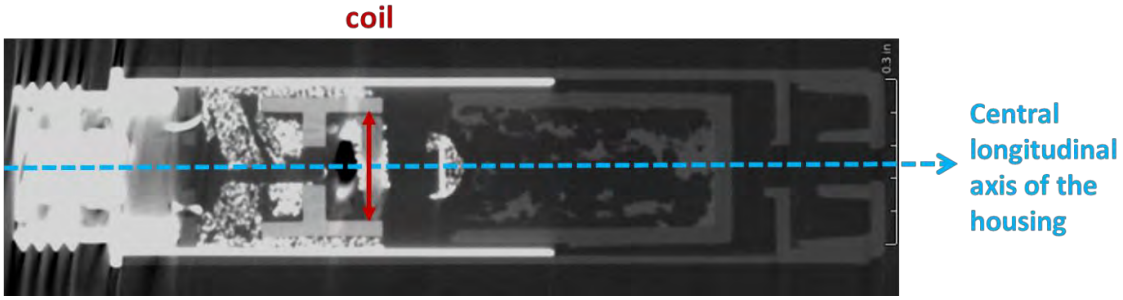
The evidence will show that the NPRO discloses or renders obvious this claim limitation. *Id.* The evidence will show that the NPRO E-Cig cartridges includes a vaporizer (i.e., atomizer) and a replaceable cartridge. The NPRO cartridge includes a heating coil with the wick extends from one area of the ceramic base to another area of the ceramic base. *See, e.g.,* RX-0082 (Photos of NJOY NPRO); JX-0404 (CT Scans of NJOY NPRO); RPX-0007 (NJOY NPRO Sample); RX-0095 (CT Scan Raw Data of NJOY NPRO); *see also* JX-0640C (Leinsing Opening Rpt., Appx. G) at ¶¶ 262-266. The heating coil with the wick extends across the ceramic base, transverse to the central longitudinal axis of the housing at least as NJOY interprets the claims and the central longitudinal axis (e.g., which can be a mere post-hoc annotation of an image of the accused device). *Id.* Complainant’s expert Dr. Vallee has testified that NPRO includes a transverse heating coil. RX-1015C (Vallee 4/12/24 Tr.) at 322:2-11.

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RX-0082 (Photos of NJOY NPRO) at RX-0082.67 (annotated in red).



JX-0404 (NPRO Photos) at JX-0404.16 (annotated in blue and red).

When airflow passes through the housing, it travels around the heating coil with the wick and the heating coil and the wick are at least partially exposed to the airflow. *Id.* Therefore, the heating coil in combination with the wicking material serve as the claimed "heating element" at least as NJOY interprets the claims (e.g., allowing the heating and wicking parts of the heating element to be separate components).

NJOY contends that the heating coil is a heating element in the NPRO's atomizer, which a POSITA would understand are separate and distinction from the claimed cartridge. *See* JX-0640C

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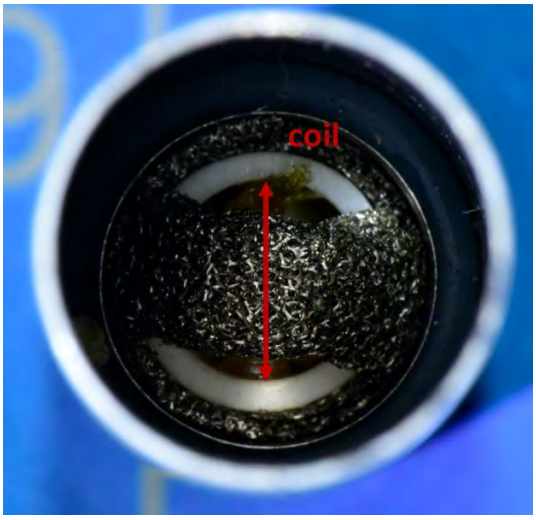
(Leinsing Opening Rpt., Appx. G) at ¶ 225. However, as Mr. Leinsing will opine, because the atomizer is part of the cartridge section, the cartridge section includes the heating element.

9. NJOY NCIG in view of Wang '554, Fang '044, and Wang '927 – '864 Patent, Claim 1[e]

For the same reasons why NJOY NPRO in view of Wang '554, Fang '044, and Wang '927 discloses or renders obvious this limitation, the NJOY NCIG in view of Wang '554, Fang '044, and Wang '927 also discloses or renders obvious this limitation. *See* JX-0632C (Leinsing Invalidity Rpt.) at ¶¶ 584-612; JX-0640C (Leinsing Invalidity Rpt., Appx. G) at ¶¶ 262-266; RPX-0006 (NJOY NCIG Sample); RX-0084 (Photos of NJOY NCIG); JX-0402 (CT Scans of NJOY NCIG); RX-0090 (CT scan of NCIG); RX-0109C (NJOY NCIG User Guide); JX-0482C (NJOY Welcomes to the Tobacco Plus Expo 2009), JX-0482C.3.



See JX-0402 (CT Scans of NJOY NCIG) at JX-0402.16 (annotated in red and blue).



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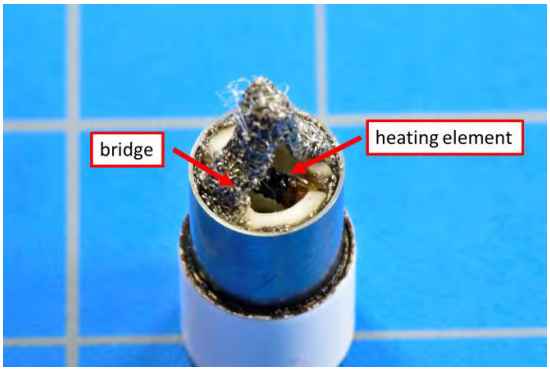
[redacted]

See RX-0084 (Photos of NJOY NCIG) at RX-0084.87 (annotated in red).

10. Cigarette Electronique – '864 Patent, Claim 1[e]

The evidence will show that Cigarette Electronique discloses or renders obvious this limitation. *See* JX-0639C (Leinsing Opening Rpt., Appx. F) at ¶¶ 310-318; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 506-547; RX-0072 (Photos of Cigarette Electronique); RPX-0011 (Cigarette Electronique Kit)..

For example, the evidence will show the cartridge section of the Cigarette Electronique device includes an atomizer, and the atomizer includes a heating element in the form of a metal wire. Mr. Leinsing will opine that a POSITA would understand that the metal wire heats up in response to electrical power, and can therefore is the claimed "heating element," at least as NJOY interprets the claims (e.g., allowing the heating and wicking parts of the heating element to be separate components).

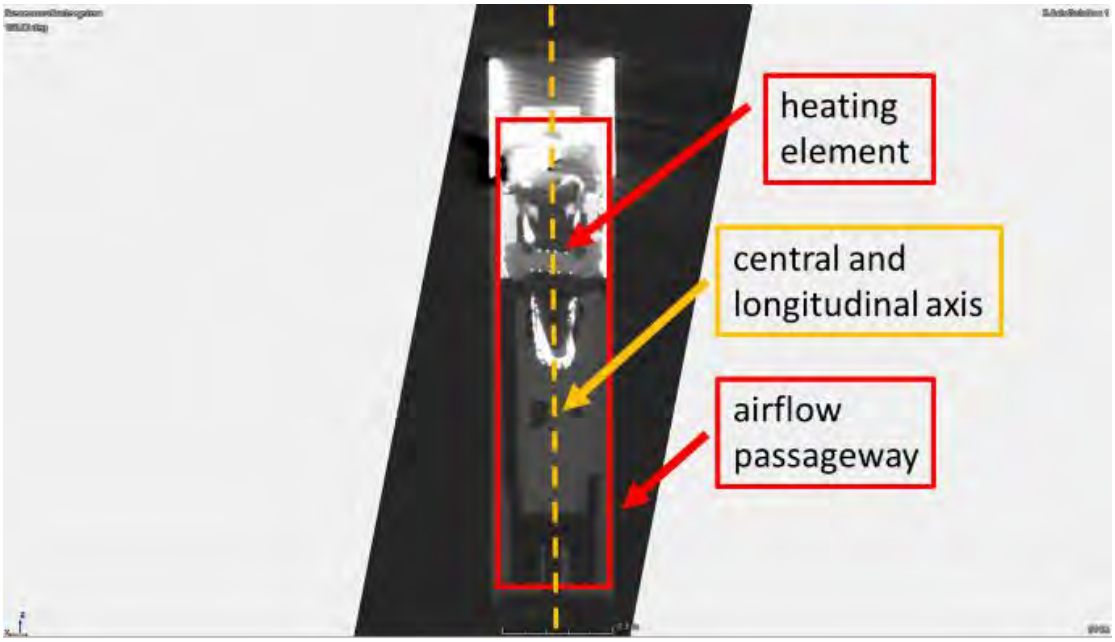


See CX-2763 at CX-2763.9; *see also* JX-0640C (Leinsing Opening Rpt., Appx. G) at ¶¶ 310-318.

The CT scan below shows the positioning of the heating element in the airflow passageway within the interior of the housing. A POSITA would understand that the heating element extends transversely to the central longitudinal axis at least as NJOY interprets the claims and the central longitudinal axis (e.g., which can be a mere post-hoc annotation of an image of the accused device).

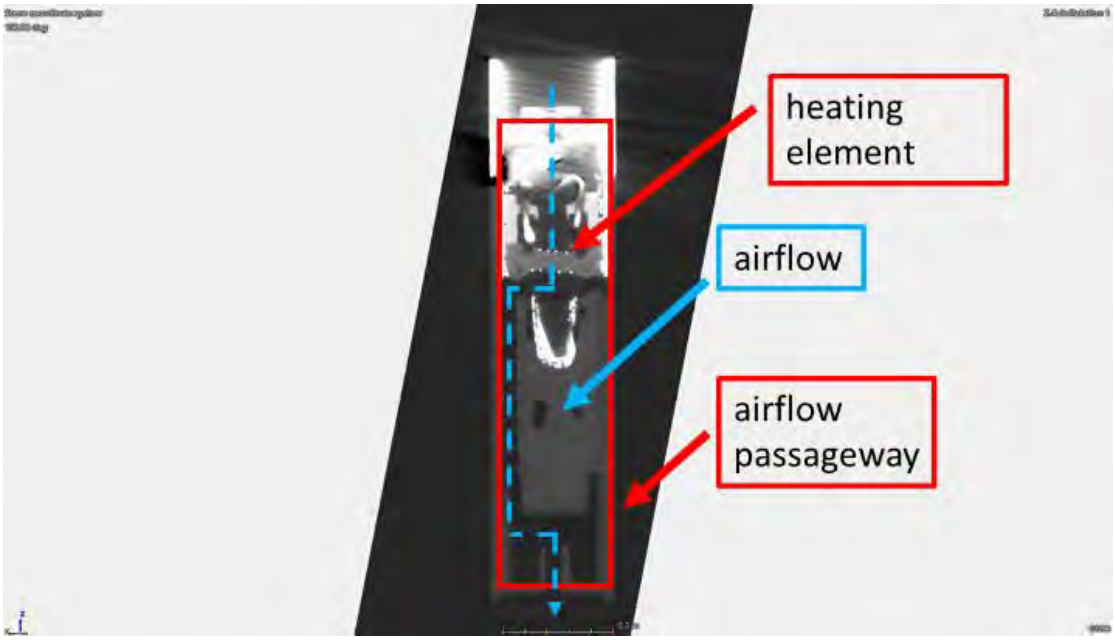
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[redacted]



See JX-0401 (Photos of Cigarette Electronique) at JX-0401.5 (annotated in red and yellow); *see also* JX-0640C (Leinsing Opening Rpt., Appx. G) at ¶¶ 310-318.

Furthermore, as identified in the CT scan below, the heating element is at least partially exposed to the airflow through the airflow passageway.



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[redacted]

See JX-0401 (Photos of Cigarette Electronique) at JX-0401.5 (annotated in red and blue); *see also* JX-0640C (Leinsing Opening Rpt., Appx. G) at ¶¶ 310-318.

Complainant assert that the Cigarette Electronique is a "three-piece design" comprising (1) a disposable cartridge, (2) a reusable atomizer unit, and (3) a power unit. *See* CX-2726C (Vallee Reb. Rpt.) at Appx. F, ¶¶172-173. Further, Complainant argues that the Cigarette Electronique's heating element is in the atomizer, which is separate and distinct from the claimed cartridge. *Id.* However, as Mr. Leinsing will opine, the disclosure of a three piece design at least renders obvious a two-piece design because of the known benefits of two-piece designs, including increased convenience for users, disposal of atomizers as they lose functionality due to repeated use, and more. *See, e.g.,* JX-0632C (Leinsing Opening Rpt.) at ¶¶ 47-56, 302, 329.

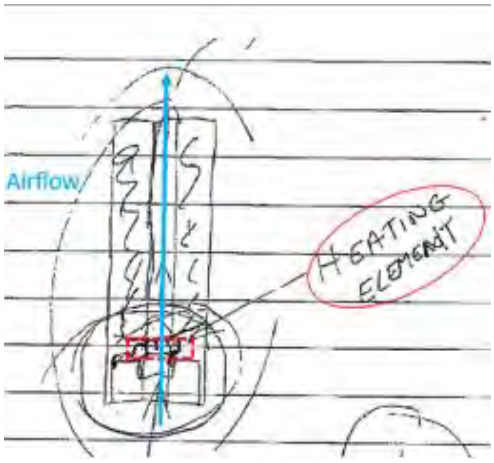
11. Fuma Prototype – '864 Patent, Claim 1[e]

The Evidence will show that the Fuma Prototype discloses this limitation. *See, e.g.,* Leinsing Opening Rpt., Appx. H) at ¶¶ 234-236; NJOY's 13th Supp. ROG Responses; RX-0078 (Photos of Fuma Starter Kit); RX-0079 (CT scans of Fuma Starter Kit).

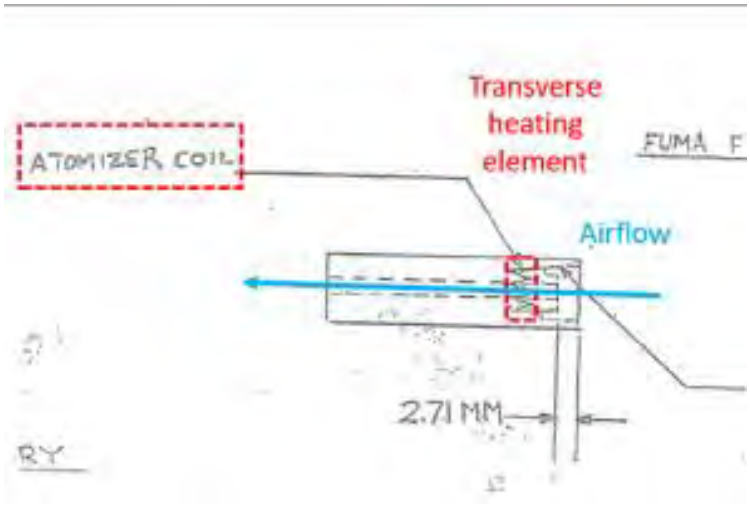
For example, the housing includes a heating coil wrapped around a wick located in the interior of the housing. The heating coil and wick extends crosswise to a central longitudinal axis of the housing and being at least partially exposed to airflow, at least as NJOY interprets the claims and the central longitudinal axis (e.g., which can be a mere post-hoc annotation of an image of the accused device).

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See '864 Priority Chart at 7 (citing CRTP Attachment C).

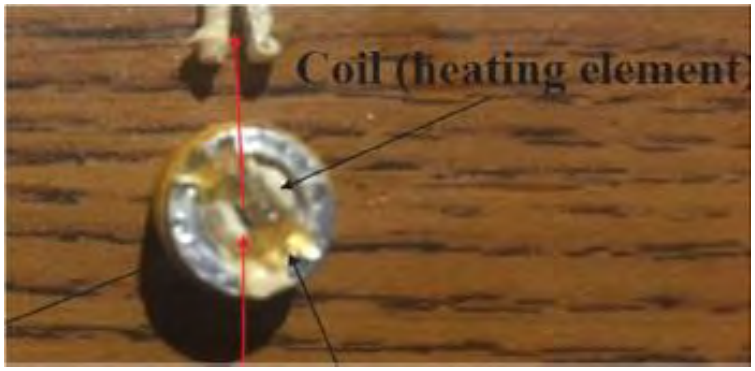


See '864 Priority Chart at 8 (citing CRTP Attachment E at FUMA-INSPECTION-0037).

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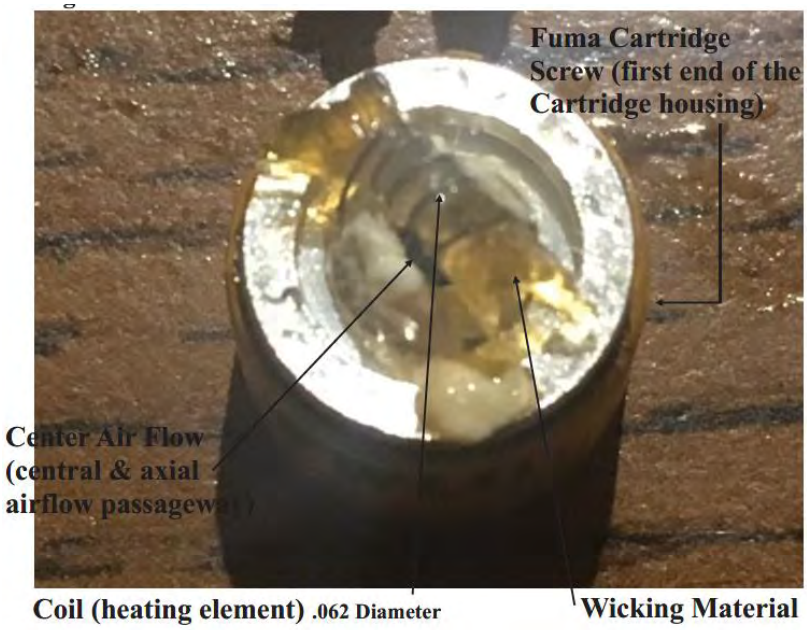


See '864 Priority Chart at 8 (citing CRTP Attachment D at Fig. 6).

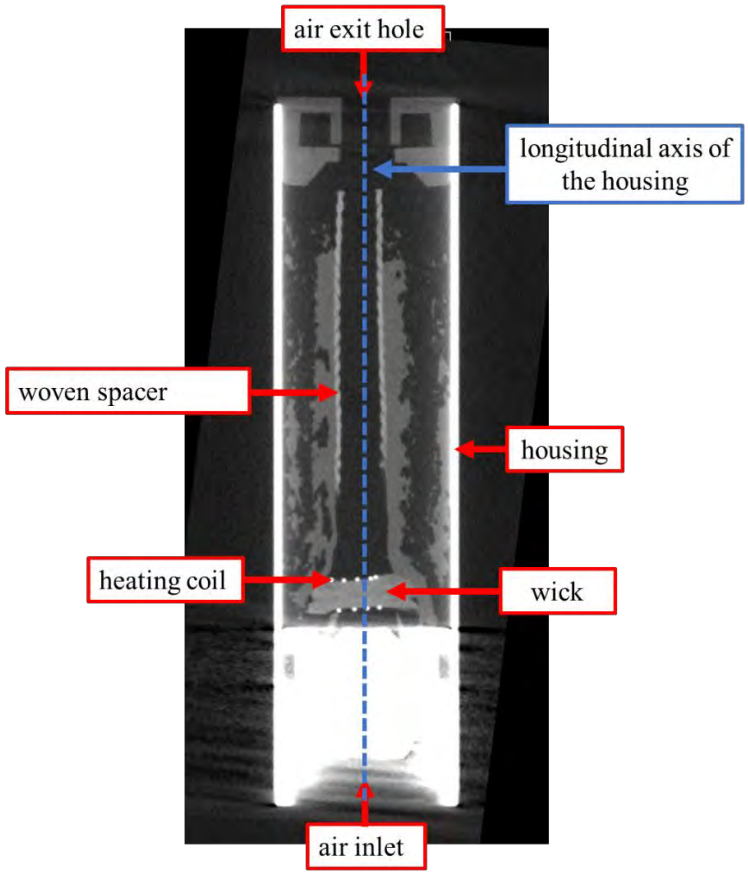


See '864 Priority Chart at 9 (citing CRTP Attachment D at Fig. 13).

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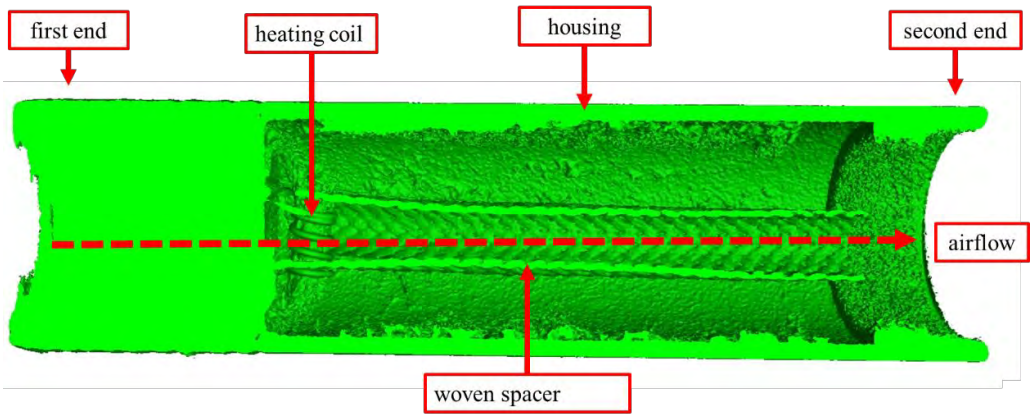
See CRTP Exhibit A at Fig. 14.



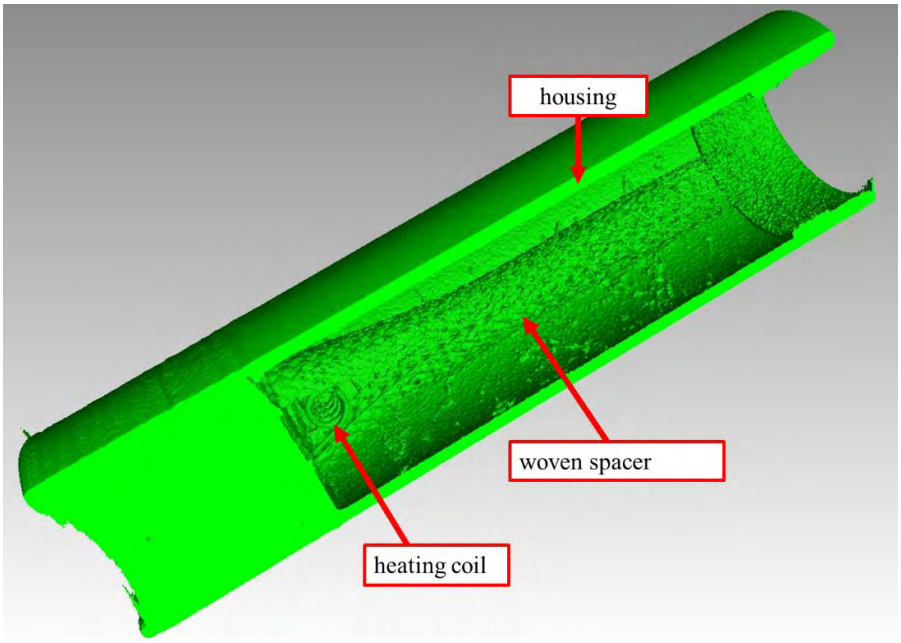
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See RX-0079 (CT scans of Fuma Starter Kit) at RX-0079.17 (annotated in red).



See RX-0079 (CT scans of Fuma Starter Kit) at RX-0079.1 (annotated in red).



See RX-0079 (CT scans of Fuma Starter Kit) at RX-0079.5 (annotated in red).

The inventor of the Asserted Patents further admitted that the Fuma Prototype discloses claim element 1(e). *See* Conley '864 Declaration at ¶5 (Independent claim 41 – Recitation 2).

NJOY also admitted that the Fuma Prototype discloses claim element 1(e). *See* '864 Priority Chart at 7-9.

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[redacted]

h. '864 Patent, claim 1[f and g]: "the heating element being configured to vaporize at least a portion of the solution for oral provision to an individual in the airflow"

The term "configured to vaporize at least [a/the] portion of the solution [drawn to the heating element] for oral provision to an individual in the airflow" has been construed "as having its plain and ordinary meaning, that is, the language of the claims." Order No. 36 at 33.

1. Xia '610 in view of Wang '554 and Fang '044 and Smoke Fifty-One Duo– '864 Patent, Claim 1[f and g]

The evidence will show that Xia '610 discloses or renders obvious, alone or in combination with Wang '554 and Fang '044 and Smoke Fifty-One Duo this limitation. *See* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 710-723; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 221-265; JX-0596 (Xia '610); JX-0595 (Fang '044); RX-0130C (Declaration of Yardimici). NJOY and its expert do not dispute that this limitation is met by Xia '610. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 793-805; CX-2726C (Vallee Reb. Rpt.) at Appx. A-1, ¶ 235.

This is disclosed at least as NJOY interprets the claims (e.g., allowing the heating and wicking parts of the heating element to be separate components[28]) (e.g., allowing vaporization of solution that has left the solution holding medium[29]) (e.g., allowing provision of aerosol rather than vapor[30]). For example, Xia '610 describes that the heater is electrically configured to output heat to vaporize the liquid: "[t]he heater 9 is powered by the rechargeable lithium battery 2 through

[28] For example, NJOY accuses the [redacted] together as the claimed heating element.

[29] For example, NJOY asserts that [redacted], and alleges that meets the claims.

[30] For example, NJOY asserts that the [redacted].

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the connecting conductor A5, the connecting conductor B6, and the integrated circuit board 3." JX-0596 (Xia '610) at JX-0596.10*; see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 718.

Xia '610 describes the structure of the heating coil, demonstrating that it is a resistive heating element and at least rendering obvious a helical heating element by disclosing a "wire" and "ring": "the heating wire 901 may be made of a platinum wire, a nickel-chromium alloy or an iron-chromium-aluminum alloy wire containing rare earth elements, and may also be made into a sheet or ring, and the heat insulation seat 902 may be made of ceramics or the like." JX-0596 (Xia '610) at JX-0596.12-13. Xia '610 also illustrates heater 9 as a "zig-zag" in its figures, which is consistent with a coil when drawn in cross-sectional diagrams like Xia's figures. *See* Xia '610 FIGs. 2, 4; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 719.

Mr. Leinsing will opine that a POSITA would have also been motivated to modify the heating element in Xia '610 to consist of a helical coil, to the extent not already disclosed by Xia '610. A coil was a well-known shape for a heating filament, which had been in production for over a hundred years (for example in a light bulb or toaster), and provides increased surface to heat the solution, as opposed to a straight wire. *See* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 720. Additionally, a coil is an open shape, allowing air to pass through it, which does not obstruct airflow. *Id.*

Xia '610 also explains that the heating coil outputs heat to vaporize the liquid from the solution holding medium, and that it is provided to a user via the airflow: "the heater 9 starts working, the chemical liquid is instantly vaporized in an atomizing working room of the heater 9, and the vaporized chemical liquid is sucked out by the smoker from the soft suction nozzle 13." Xia '610 *;* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶721. "The smoke generated by smoking is actually water vapor obtained by vaporizing the chemical liquid." JX-0596 (Xia '610)

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at JX-0596.11; *see also* JX-0596 (Xia '610) at JX-0596.1377-1378*;* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶721.

2. Wang '554 in view of Xia '610 and Fang '044 and Smoke Fifty-One Duo – '864 Patent, Claim 1[f and g]

The evidence will show that Wang '554 discloses or renders obvious, alone or in combination with Xia '610 and Fang '044 and Smoke Fifty-One Duo this limitation. *See* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 730-740; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 267-295; RX-0005 (Wang '554); JX-0596 (Xia '610); JX-0595 (Fang '044); RX-0130C (Declaration of Yardimici). NJOY and its expert do not dispute that this limitation is met by Wang '554. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 757-770; CX-2726C (Vallee Reb. Rpt.) at Appx. A-2, ¶ 143.

This is disclosed at least as NJOY interprets the claims (e.g., allowing the heating and wicking parts of the heating element to be separate components, *see supra* n. 28) (e.g., allowing vaporization of solution that has left the solution holding medium, *see supra* n. 29) (e.g., allowing provision of aerosol rather than vapor, *see supra* n. 30). For example, the evidence will show that Wang '554 discloses a cigarette rod shell 111 with a battery 110, that connects to a cartridge containing a heating element 104. The cartridge's heater 104 is powered by the battery 110, as described above, and is therefore electrically configured to heat. RX-0005 (Wang '554) at RX-0005.5; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 733. Wang '554 also states that it is configured to output heat to vaporize at least a portion of the tobacco extract 103 in the fiber 105: "[s]ince the tobacco extract 103 is in a liquid or paste state, when heated, the tobacco extract 103 is first vaporized into smoke." RX-0005 (Wang '554) at RX-0005.7; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 733. The airflow through the airflow passageway exits

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through the second aperture, to a user. Wang '554 describes the process of vapor creation and delivery to the user:

> its working sequence is as follows: a smoking motion causes airflow to enter the interior of the cigarette rod through the air inlet 115 of the cigarette rod, the sensor 112 is driven to transmit a switching signal to the control circuit board 113, the control circuit board 113 drives the heater 104 connected together through terminals to work, at the same time, the airflow reaches the internal gap of the cigarette holder through the air outlet 108 of the cigarette rod and the air inlet 106 of the cigarette holder, and the smoke generated by the tobacco extract 103 instantly heated by the heater 104 is partially sucked out from the air outlet 101 of the cigarette holder.

RX-0005 (Wang '554) at RX-0005.8; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 733.

3. Fang '044 in view of Xia '610 and Wang '554 and Smoke Fifty-One Duo – '864 Patent, Claim 1[f and g]

The evidence will show that Fang '044 discloses or renders obvious, alone or in combination with Xia '610 and Wang '554 and Smoke Fifty-One Duo this limitation. *See* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 741-746; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 296-321; JX-0595 (Fang '044); JX-0596 (Xia '610); RX-0005 (Wang '554); RX-0130C (Declaration of Yardimici). NJOY and its expert do not dispute that this limitation is met by Fang '044. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 467-480; CX-2726C (Vallee Reb. Rpt.) at Appx. A-3, ¶ 151.

This is disclosed at least as NJOY interprets the claims (e.g., allowing the heating and wicking parts of the heating element to be separate components, *see supra* n. 28) (e.g., allowing vaporization of solution that has left the solution holding medium, *see supra* n. 29) (e.g., allowing provision of aerosol rather than vapor, *see supra* n. 30). For example, the evidence will show that Fang 044 explains that its heating wire outputs heat to vaporize solution that is contained in the temporary oil storage device (part of the solution holding medium) for oral provision to a user:

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> [w]hen the utility model is in use, the smoking channel 10 generates a negative pressure in the support 13 towards the direction of the switch circuit board 12, under the control of the Hall element and the field-effect tube, the switch circuit board 12 makes the electric heating film wire 16 be communicated with the battery 3, due to the action of the capillary tubes, the temporary oil storage device 15 sucks in nicotine oil stored in the nicotine oil storage device 14, when the electric heating film wire 16 is powered on to heat, nicotine oil on the temporary oil storage device 15 is fumed to produce nicotine oil smoke, and the nicotine oil smoke is smoked by the user through the gas pipe 8 and the smoking channel 10.

JX-0595 (Fang '044) at JX-0595.5-6; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 744.

4. Wang '927 in view of Wang '554 and NPRO Style – '864 Patent, Claim 1[f and g]

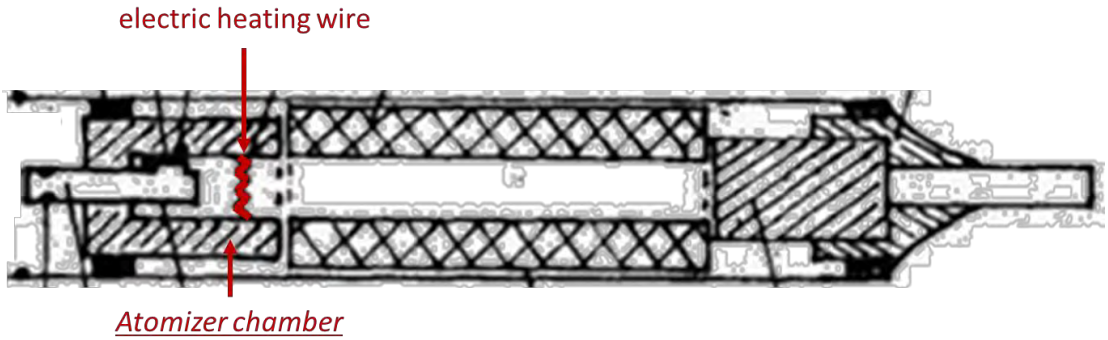
The evidence will show that Wang '927 discloses or renders obvious, alone or in combination with Wang '554 and NPRO Style this limitation. *See* JX-0634 (Leinsing Opening Rpt., Appx. B) at ¶¶ 264-270; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 323-356; JX-0594 (Wang '927); RX-0005 (Wang '554); RX-0080 (Photos of NPRO Style); RPX-0008 (Physical sample of NPRO Style); JX-0405 (CT Scans of NPRO Style); RX-0094 (Raw CT Scan of NPRO Style). NJOY and its expert do not dispute that this limitation is met by Wang '927. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 784-793; CX-2726C (Vallee Reb. Rpt.) at Appx. B, ¶ 192.

This is disclosed at least as NJOY interprets the claims (e.g., allowing the heating and wicking parts of the heating element to be separate components, *see supra* n. 28) (e.g., allowing vaporization of solution that has left the solution holding medium, *see supra* n. 29) (e.g., allowing provision of aerosol rather than vapor, *see supra* n. 30). JX-0594 (Wang '927) at Fig. 1 and JX-0594.1-5; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 356. For example, Wang '927 discloses the electric heating wire 9 that generates heat to vaporize tobacco juice for a user to inhale. JX-0594 (Wang '927) at JX-0594.1("An air intake switch is connected to a heater switch, and a power

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supply of a heater is controlled by the air intake switch to be turned on and off, and air carries heat to vaporize tobacco juice in the tobacco juice bin."), JX-0594.3 ("The heater can be an electric heating wire or can conduct heating using a microwave principle."), JX-0594.5 ("When the air intake switch 7 is opened, it is connected to the switch contact 8, a power supply of the electric heating wire 9 is turned on, and the electric heating wire 9 generates heat. Air carries heat generated by the electric heating wire 9, causing tobacco juice filled into the fiber filler in the tobacco juice bin 13 to vaporize to form smoke."); *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 356. Under NJOY's interpretation, the heating element can include additional non-heating components, such as the atomizer holder.



See JX-0594 (Wang '927) at Fig. 1 (cropped to only show the tail end) (annotated in red); *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 356.

5. Han '364 in view of Fang '044 and NPRO Style – '864 Patent, Claim 1[f and g]

The evidence will show that Han '364 in view of Fang '044 and NPRO Style discloses or renders obvious this limitation. *See* JX-0635 (Leinsing Opening Rpt., Appx. C) at ¶¶ 274-278; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 357-403; JX-0631 (Han '364 certified English Translation) ; JX-0595 (Fang '044); RX-0080 (Photos of NPRO Style); RPX-0008 (NJOY NPRO Style Kit).

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This is disclosed at least as NJOY interprets the claims (e.g., allowing the heating and wicking parts of the heating element to be separate components, *see supra* n. 28) (e.g., allowing vaporization of solution that has left the solution holding medium, *see supra* n. 29) (e.g., allowing provision of aerosol rather than vapor, *see supra* n. 30). For example, Han '364 discloses that filament 6/23/49 (i.e., the heating element) is heated via power from a battery, to vaporize nicotine liquid held in the fire-resistant fire 5/wire mesh 21, projected wire mesh 22, and fiber containing liquid 35/filling fiber 44. *See, e.g.,* JX-0631 (Han '364 certified English Translation) at [0013]-[0014]*; see also* JX-0635 (Leinsing Opening Rpt., Appx. C) at ¶¶ 274-277. "[W]hen you place your mouth on the rubber stopper (11) and suck in air," vapor then travels out of suction hole 12/36, via the airflow passageway, to the user. *See, e.g.,* JX-0631 (Han '364 certified English Translation) at [0013]; *see also* JX-0635 (Leinsing Opening Rpt., Appx. C) at ¶¶ 274-277.

6. Red Dragon in view of Fang '044 and Wang '927 – '864 Patent, Claim 1[f and g]

The evidence will show that Red Dragon in view of Fang '044 and Wang '927 discloses or renders obvious this limitation. *See* JX-0638 (Leinsing Opening Rpt., Appx. E) at ¶¶ 269-275; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 461-505; RX-0074 (Photos of Red Dragon Kit # 1); RX-0076 (Photos of Red Dragon Kit # 2); RX-1309 (Red Dragon Product 3 Piece Kit (Evans 2)); RX-0077 (CT scans of Red Dragon Kit #2); RX-0098 ([vg-project] Red Dragon - Cartridge_Pen Package.zip (Native)); RX-0099 ([vg-project] Red Dragon - Pen.zip (Native)); RPX-0009 (Red Dragon 3-Piece Kit); RPX-0010 (Red Dragon 3-Piece Kit (Sealed); JX-0595 (Fang '044); JX-0594 (Wang '927). NJOY and its expert do not dispute that the Red Dragon discloses or renders obvious this claim limitation. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 916-937; CX-2726C (Vallee Reb. Rpt.) at Appx. E, ¶ 114.

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This is disclosed at least as NJOY interprets the claims (e.g., allowing the heating and wicking parts of the heating element to be separate components, *see supra* n. 28) (e.g., allowing vaporization of solution that has left the solution holding medium, *see supra* n. 29) (e.g., allowing provision of aerosol rather than vapor, *see supra* n. 30). The heating coil is a helical-shaped resistive heating element that outputs heat to vaporize at least a portion of the solution absorbed in the absorbent material for oral provision to a user when the user draws from the lid. *See, e.g.,* RX-0077 (CT Scans of Red Dragon Kit #2) at RX-0077.38; RX-0077 at RX-0077.22; RX-1126C (Evans 03/11/24 Tr.) at 86:25-88:25; *see also* JX-0638C (Leinsing Opening Rpt., Appx. E) at ¶¶ 269-272. The heating coil is in the airflow passageway and outputs heat to vaporize e-liquid in the airflow passageway between the air inlet and the air exit hole. *Id.*

Further, the heating coil is configured to output heat to vaporize at least a portion of the e-liquid for oral provision to an individual in the airflow. When the Red Dragon is turned on (i.e., when a user draws from the lid), current flows from the battery to the cartomizer via the center portion and the threaded portion of the female threaded conductor. *See, e.g.,* RX-0077 (CT Scans of Red Dragon Kit #2) at RX-0077.38; RX-0077 at RX-0077.22; RX-1126C (Evans 03/11/24 Tr.) at 86:25-88:25; *see also* JX-0638C (Leinsing Opening Rpt., Appx. E) at ¶¶ 269-272. The heating coil then outputs heat to vaporize e-liquid in the housing. *Id.*

Dr. Vallee has asserted that the heating coil would not fit in the airflow passageway if rotated to be perpendicular to the longitudinal axis. *See, e.g.,* RX-1015C (Vallee 04/12/2024 Tr.) 497:8-498:1. However, the Fuma prototype, which Dr. Vallee asserts practices the claims, has a heating coil that is perpendicular to the longitudinal axis, and extends into the batting material—beyond the airflow passageway—demonstrating that this was not a problem and would not have prevented a POSITA from making such a configuration. *See, e.g.,* RX-0079 at JLI-

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ITC1372_00980739; RX-1015C (Vallee 04/12/2024 Tr.) at 502:13-21, 506:24-507:11 (confirming the Fuma device did not create a burned taste).

7. Smoke Fifty-One Duo in view of Fang '044 and Wang '927 – '864 Patent, Claim 1[f and g]

The evidence will show that Smoke Fifty-One Duo in view of Fang '044 and Wang '927 discloses or renders obvious this limitation. *See* JX-0636C (Leinsing Opening Rpt., Appx. D) at ¶¶ 260-267; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 413-460; RX-0130C (Declaration of Yardimici); JX-0595 (Fang '044); JX-0594 (Wang '927). NJOY and its expert do not dispute that Smoke Fifty-One Duo discloses or renders obvious this claim limitation. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 897-916; CX-2726C (Vallee Reb. Rpt.) at Appx. D, ¶ 71.

This is disclosed at least as NJOY interprets the claims (e.g., allowing the heating and wicking parts of the heating element to be separate components, *see supra* n. 28) (e.g., allowing vaporization of solution that has left the solution holding medium, *see supra* n. 29) (e.g., allowing provision of aerosol rather than vapor, *see supra* n. 30). The heating coil is a helical-shaped resistive heating element that outputs heat to vaporize at least a portion of the solution absorbed in the absorbent material for oral provision to a user when the user draws from the lid. *See, e.g.,* RX-0130C (Yardimici Declaration) at RX-0130C.16 (annotated in red, cropped); RX-0129C (Wang Declaration) at RX-0129C.40 (annotated in red, cropped); *see also* JX-0636C (Leinsing Opening Rpt., Appx. D) at ¶¶ 260-261. The heating coil is in the airflow passageway and outputs heat to vaporize e-liquid in the airflow passageway between the air inlet and the air exit hole. *Id.*

Further, the heating coil is configured to output heat to vaporize at least a portion of the e-liquid for oral provision to an individual in the airflow. When the Smoke Fifty-One Duo is turned on (i.e., when a user draws from the lid), current flows from the battery to the cartridge via the

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central tube and the threaded portion of the female threaded conductor. *See, e.g.,* RX-0130C (Yardimici Declaration) at RX-0130C.16 (annotated in red, cropped); RX-0129C (Wang Declaration) at RX-0129C.40 (annotated in red, cropped); JX-0548 (Conley RJRV Tr.), at 61:17-25, 62:1-9 (annotated); *see also* JX-0636C (Leinsing Opening Rpt., Appx. D) at ¶¶ 262-265. The heating coil then outputs heat to vaporize e-liquid in the housing. *Id.*

8. NJOY NPRO in view of Wang '554, Fang '044, and Wang '927 – '864 Patent, Claim 1[f and g]

The evidence will show that NJOY NPRO in view of Wang '554, Fang '044, and Wang '927 discloses or renders obvious this limitation. *See* JX-0640C (Leinsing Opening Rpt., Appx. G) at ¶¶ 267-273; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 548-612; RX-0082 (Photos of NJOY NPRO); JX-0404 (CT Scans of NJOY NPRO); RPX-0007 (NJOY NPRO Sample); RX-0095 (CT Scan Raw Data of NJOY NPRO); RX-0005 (Wang '554); JX-0595 (Fang '044). NJOY and its expert do not dispute that the NJOY NPRO discloses or renders obvious this claim limitation. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 963-980; CX-2726C (Vallee Reb. Rpt.) at Appx. G, ¶ 208.

This is disclosed at least as NJOY interprets the claims (e.g., allowing the heating and wicking parts of the heating element to be separate components, *see supra* n. 28; allowing vaporization of solution that has left the solution holding medium, *see supra* n. 29; e.g., allowing provision of aerosol rather than vapor, *see supra* n. 30). The evidence will show that the NJOY NPRO discloses or renders obvious this claim limitation. RX-0082 (Photos of NJOY NPRO); JX-0404 (CT Scans of NJOY NPRO); RPX-0007 (NJOY NPRO Sample); RX-0095 (CT Scan Raw Data of NJOY NPRO). [redacted]

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[redacted]. *See, e.g.,* JX-0402 (NCIG Photos) at JX-0402.16 (annotated in red and blue); RX-0084 (Photos of NJOY NCIG) at RX-0084.87; RX-1120C (Bonet 3/6/2024 Tr.) at 259:14-16; *see also* JX-0640C (Leinsing Opening Rpt., Appx. G) at ¶¶ 267-273. The wick brings solution to the coil and the coil output heat to vaporize the solution. *Id.* Further, the coil is connected to wires that would be coupled to the power source when the cartridge is screwed into the power source so that the coil receives power from the power source. *Id*.

9. NJOY NCIG in view of Wang '554, Fang '044, and Wang '927 – '864 Patent, Claim 1[f and g]

For the same reasons why NJOY NPRO in view of Wang '554, Fang '044, and Wang '927 discloses or renders obvious this limitation, the NJOY NCIG in view of Wang '554, Fang '044, and Wang '927 also discloses or renders obvious this limitation. *See* JX-0632C (Leinsing Invalidity Rpt.) at ¶¶ 584-612; JX-0640C (Leinsing Invalidity Rpt., Appx. G) at ¶¶ 267-273; RPX-0006 (NJOY NCIG Sample); RX-0084 (Photos of NJOY NCIG); JX-0402 (CT Scans of NJOY NCIG); RX-0090 (CT scan of NCIG); RX-0109C (NJOY NCIG User Guide); JX-0482C (NJOY Welcomes to the Tobacco Plus Expo 2009), JX-0482C.3.

10. Cigarette Electronique – '864 Patent, Claim 1[f and g]

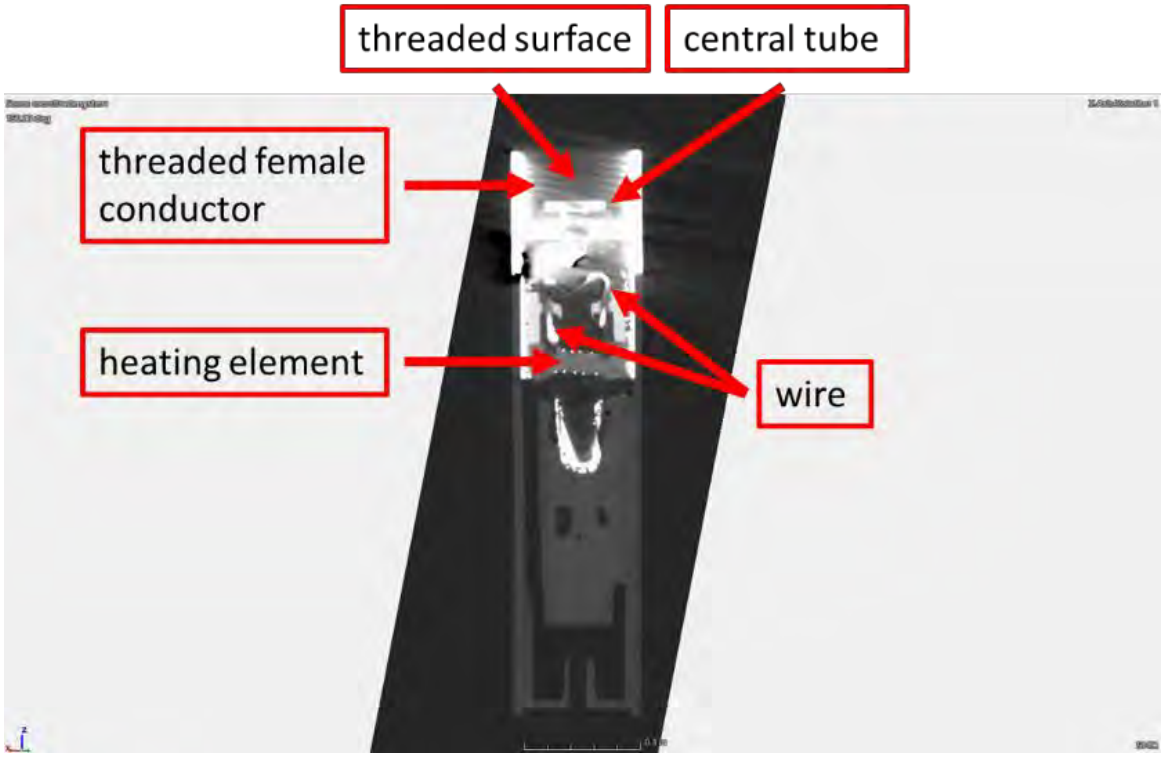
The evidence will show that Cigarette Electronique discloses or renders obvious this limitation. *See* JX-0639C (Leinsing Opening Rpt., Appx. F) at ¶¶ 319-331; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 506-547; RX-0072 (Photos of Cigarette Electronique); RPX-0011 (Cigarette Electronique Kit).. NJOY and its expert do not dispute that this limitation is met by the Cigarette Electronique. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 937-963; CX-2726C (Vallee Reb. Rpt.) at Appx. F, ¶ 167.

This is disclosed at least as NJOY interprets the claims (e.g., allowing the heating and wicking parts of the heating element to be separate components, *see supra* n. 28) (e.g., allowing

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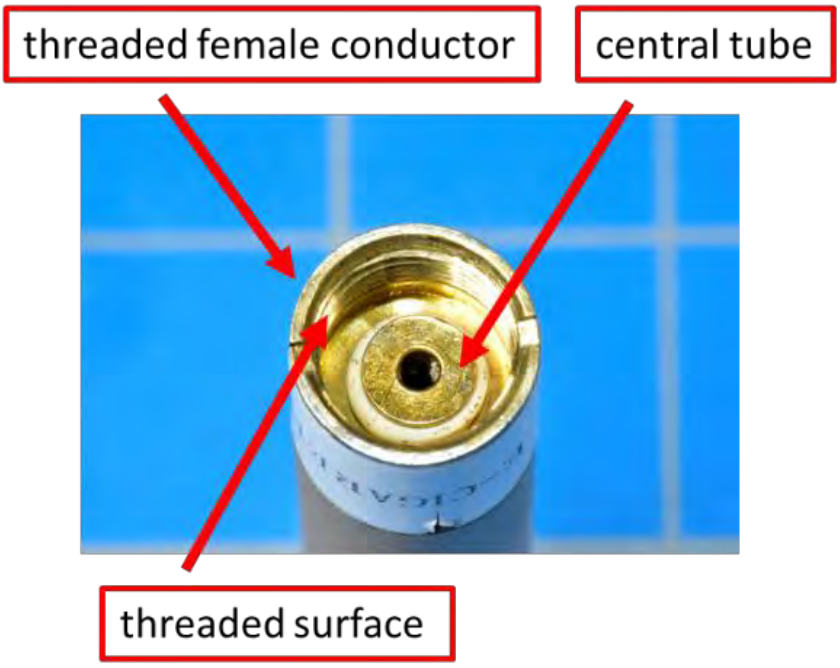
vaporization of solution that has left the solution holding medium, *see supra* n. 29) (e.g., allowing provision of aerosol rather than vapor, *see supra* n. 30). For example, the evidence will show, in the Cigarette Electronique device, the heating coil is a helical-shaped resistive wire in the atomizer of the cartridge section. One end of the heating coil is connected to the central tube of the threaded female conductor, while the other end is connected to the threaded surface of the threaded female conductor. The central tube of the threaded female conductor is insulated from the threaded surface of the threaded female conductor. When the Cigarette Electronique is used, current flows from the battery of the power source section through the central tube and the threaded surface of the threaded female conductor. The heating coil then heats up to vaporize the e-liquid in the housing.



See JX-0401 (Photos of Cigarette Electronique) at JX-0401.5 (annotated in red); *see also* JX-0639C (Leinsing Opening Rpt., Appx. F) at ¶¶ 319-323.

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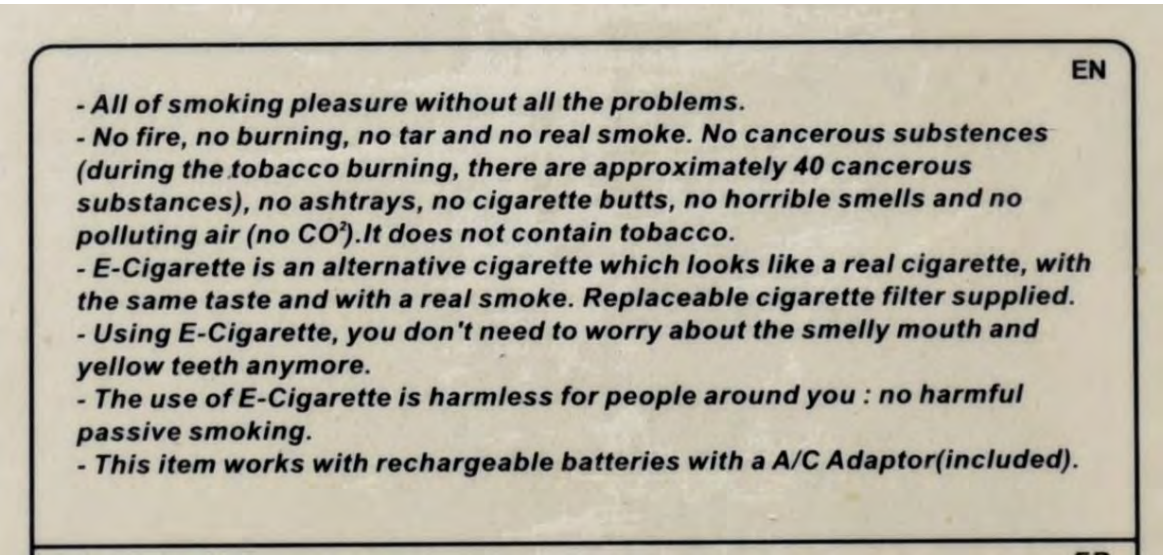


See RX-0072 at RX-0072.36; (annotated in red); *see also* JX-0639C (Leinsing Opening Rpt., Appx. F) at ¶¶ 319-323.

Further the Cigarette Electronique device is advertised as "an alternative cigarette", having "the same taste" as a real cigarette, which improves the effects on a users "mouth" and "teeth," which to a POSITA would imply that the device is configured to generate heat to vaporize a solution to be inhaled by a user orally.

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See RX-0072 at RX-0072.11;*see also* JX-0639C (Leinsing Opening Rpt., Appx. F) at ¶¶ 319-324.

11. Fuma Prototype – '864 Patent, Claim 1[f and g]

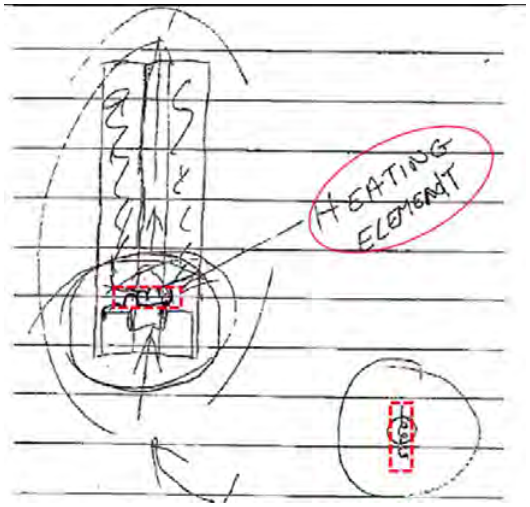
The Evidence will show that the Fuma Prototype discloses this limitation. *See, e.g.,* Leinsing Opening Rpt., Appx. H) at ¶¶ 239-241; NJOY's 13th Supp. ROG Responses; RX-0078 (Photos of Fuma Starter Kit); RX-0079 (CT scans of Fuma Starter Kit).

This is disclosed at least as NJOY interprets the claims (e.g., allowing the heating and wicking parts of the heating element to be separate components, *see supra* n. 28) (e.g., allowing vaporization of solution that has left the solution holding medium, *see supra* n. 29) (e.g., allowing provision of aerosol rather than vapor, *see supra* n. 30). The heating coil is a helical shaped resistive heating element. The heating coil also outputs heat to vaporize at least a portion of the solution for oral provision to an individual in the airflow between the air inlet and the air exit hole. Specifically, the heating coil outputs heat to vaporize the e-liquid absorbed in the wick. The vaporized e-liquid is provided to an individual from the cap at the second end. *See* '864 Priority Chart at 10 (citing CRTP Attachment F at ¶4) ("As depicted in Exhibit A, the electronic cigarette is provided to

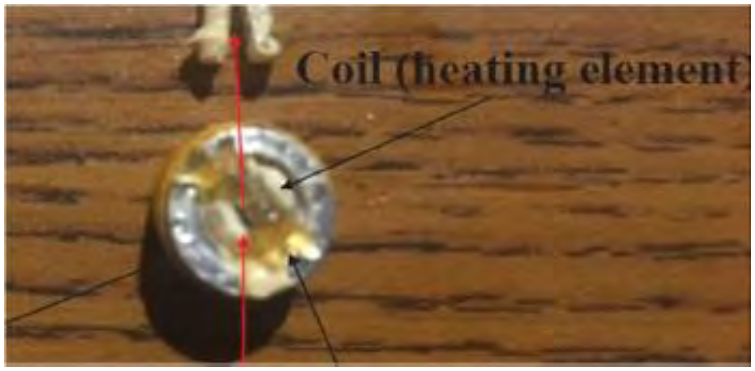
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vaporize at least a portion of a vaping liquid contained in a holding medium contained in the cartridge. The vaporization is facilitated using a heating element included in the cartridge responsive to electrical power received from a battery (white portion of electronic cigarette in Exhibit A), and the vaporized liquid is for oral provisioning to an individual in an airflow that travels through the electronic cigarette.").



See '864 Priority Chart at 9 (citing CRTP Attachment C); '881 Priority Chart at 23 (citing CRTP Attachment C).



See '864 Priority Chart at 10 (citing CRTP Attachment D at Fig. 13).

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The inventor of the Asserted Patents further admitted that the Fuma Prototype discloses claim element 1(f) &1(g). *See* Conley '864 Declaration at ¶5 (Independent claim 41 – Recitation 2).

NJOY also admitted that the Fuma Prototype discloses claim elements 1(f) & 1(g). *See* '864 Priority Chart at 9-11.

i. '864 Patent, claim 1[h]: "the heating element being responsive to electrical power received from the power source"

1. Xia '610 in view of Wang '554 and Fang '044 and Smoke Fifty-One Duo– '864 Patent, Claim 1[h]

The evidence will show that Xia '610 discloses or renders obvious, alone or in combination with Wang '554 and Fang '044 and Smoke Fifty-One Duo this limitation. *See* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 753-755; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 257-263; JX-0596 (Xia '610); JX-0595 (Fang '044); RX-0130C (Declaration of Yardimici). NJOY and its expert do not dispute that this limitation is met by Xia '610. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 793-805; CX-2726C (Vallee Reb. Rpt.) at Appx. A-1, ¶ 235.

For example, Xia '610 explains that "[t]he heater 9 is powered by the rechargeable lithium battery 2 through the connecting conductor A5, the connecting conductor B6, and the integrated circuit board 3." JX-0596 (Xia '610) at JX-0596.10*; see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 718. Xia '610 explains the specifics of the connection, demonstrating that the electrical power for the heating coil is received from the battery through the electrically conductive portions:

> As shown in Fig. 3, the connecting conductor A5 and the connecting conductor B6 form a connecting outer ring through an inner thread 602 and an outer thread 604, respectively, a negative electrode of a lead-in wire for connecting the heater reaches the rechargeable lithium battery 2 via the integrated circuit board 3, and a positive electrode of the lead-in wire connected with the heater through two hollow columnar conductors 601, 603 reaches the rechargeable lithium battery 2 via the

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> integrated circuit board 3; and an insulating material ring 605 separate the positive and negative electrodes 601, 603 and 602, 604.

See JX-0596 (Xia '610) at JX-0596.12. "[T]he heating wire is connected to the power supply to generate heat." JX-0596 (Xia '610) at JX-0596.14.

2. Wang '554 in view of Xia '610 and Fang '044 and Smoke Fifty-One Duo – '864 Patent, Claim 1[h]

The evidence will show that Wang '554 discloses or renders obvious, alone or in combination with Xia '610 and Fang '044 and Smoke Fifty-One Duo this limitation. *See* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 756-760; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 267-295; RX-0005 (Wang '554); JX-0596 (Xia '610); JX-0595 (Fang '044); RX-0130C (Declaration of Yardimici). NJOY and its expert do not dispute that this limitation is met by Wang '554. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 757-770; CX-2726C (Vallee Reb. Rpt.) at Appx. A-2, ¶ 143.

For example, the evidence will show that Wang '554 discloses that the heating of heater 104 is in response to power provided from the battery, via the circuit, to the conductive portions, to the heater as explained above. Wang '554 discloses that the battery is connected to the circuit: "The sensor 112 of the cigarette rod is a switch device that drives the circuit control board 113 and then drives the discharge output of the battery 110." RX-0005 (Wang '554) at RX-0005.6; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 758.

Wang '554 explains that heating is in response to power transmitted from the circuit to the heater: "the sensor 112 is driven to transmit a switching signal to the control circuit board 113, the control circuit board 113 drives the heater 104 connected together through terminals to work." RX-0005 (Wang '554) at RX-0005.8; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 759.

Wang '554 also explains that the heater is electrically connected via the conductive portions: "The output end 109 of the cigarette rod matches the input end 106 of the cigarette holder,

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and two poles are isolated by an insulating material, and are connected with the input end 107 of the cigarette holder, respectively, thereby connecting to the electric heater 104 of the cigarette holder." RX-0005 (Wang '554) at RX-0005.6-7; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 760.

3. Fang '044 in view of Xia '610 and Wang '554 and Smoke Fifty-One Duo – '864 Patent, Claim 1[h]

The evidence will show that Fang '044 discloses or renders obvious, alone or in combination with Xia '610 and Wang '554 and Smoke Fifty-One Duo this limitation. *See* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶¶ 761-764; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 296-321; JX-0595 (Fang '044); JX-0596 (Xia '610); RX-0005 (Wang '554); RX-0130C (Declaration of Yardimici). NJOY and its expert do not dispute that this limitation is met by Fang '044. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 467-480; CX-2726C (Vallee Reb. Rpt.) at Appx. A-3, ¶ 151.

For example, the evidence will show that Fang explains that the heating wire is connected to, and receives power from the battery during use: "the switch circuit board 12 makes the electric heating film wire 16 be communicated with the battery 3, … [so] the electric heating film wire 16 is powered on to heat." Fang 044 at 1269; *see also* JX-0633C (Leinsing Opening Rpt., Appx. A) at ¶ 763. As explained above, in making Fang 044 have a cartridge configuration, a POSITA would include electrically conductive portions on the power portion and the cartridge portion for the purpose of providing electric power supply to the heating wire, so the power supplied to the heating wire would be through those parts.

Additionally, in combining Fang 044 with Xia 610 or Wang 554 or Smoke Fifty-One Duo, this feature would have been obvious for the same reasons those references disclose or suggest this feature.

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4. Wang '927 in view of Wang '554 and NPRO Style – '864 Patent, Claim 1[h]

The evidence will show that Wang '927 discloses or renders obvious, alone or in combination with Wang '554 and NPRO Style this limitation. *See* JX-0634 (Leinsing Opening Rpt., Appx. B) at ¶¶ 271-274; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 323-356; JX-0594 (Wang '927); RX-0005 (Wang '554); RX-0080 (Photos of NPRO Style); RPX-0008 (Physical sample of NPRO Style); JX-0405 (CT Scans of NPRO Style); RX-0094 (Raw CT Scan of NPRO Style). NJOY and its expert do not dispute that this limitation is met by Wang '927. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 784-793; CX-2726C (Vallee Reb. Rpt.) at Appx. B, ¶ 192.

For example, the evidence will show that when an individual draws from the cigarette holder 11 and the switch is turned on, current flows from the battery 3, via the electrode 17 and air intake pipe 14 to power the electric heating wire 9 to generate heat. JX-0634 (Leinsing Opening Rpt., Appx. B) at¶ 272; JX-0594 (Wang '927) at Fig. 1, JX-0594.3-5.

Further, with the modification that adds conductive threaded connections to the tail end and front end as discussed above with respect to '864 Patent claim 1[pre], the electric heating wire 9 receives electrical power from the battery through the threaded connections of the tail end and front end when a user inhales from the cigarette holder. *See* JX-0634 (Leinsing Opening Rpt., Appx. B) at ¶ 273; JX-0594 (Wang '927) at Fig. 1, JX-0594.3-5; Section IV.G.1.xiii.b *supra*.

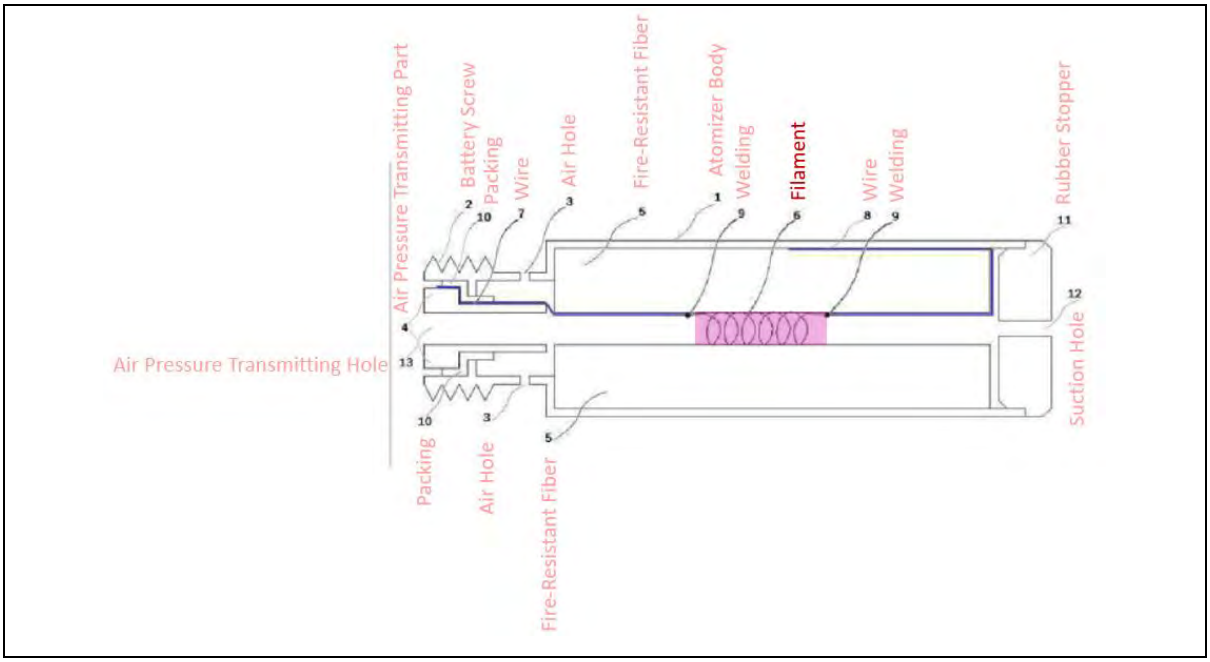
5. Han '364 in view of Fang '044 and NPRO Style – '864 Patent, Claim 1[h]

The evidence will show that Han '364 in view of Fang '044 and NPRO Style discloses or renders obvious this limitation. *See* JX-0635 (Leinsing Opening Rpt., Appx. C) at ¶¶ 279-281; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 357-403; JX-0631 (Han '364 certified English Translation) ; JX-0595 (Fang '044); RX-0080 (Photos of NPRO Style); RPX-0008 (NJOY NPRO Style Kit).

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For example, the evidence will show Han '364 discloses that the heating element is electrically powered by the battery. *See* JX-0631 (Han '364 certified English Translation) at [0013], [0017]; *see also* JX-0635 (Leinsing Opening Rpt., Appx. C) at ¶¶ 279-281. For example, Han '364 discloses a filament 6 which is positioned between fire-resistant fiber 5, within the airflow passageway. JX-0631 (Han '364 certified English Translation) at [0013]. For example, "filament (6) … generates heat." *Id.*, at [0013]. The filament 6 is designed to generate heat via power from a battery. *See id.* at [0002], [0017]. "[A]s the filament (6) of the atomizer is heated, the liquid contained in the fire-resistant fiber (5) is vaporized." *Id.*, at [0013]. Air flows over and through the heating coil 6 to flow from the first aperture to the second aperture. *See id*.

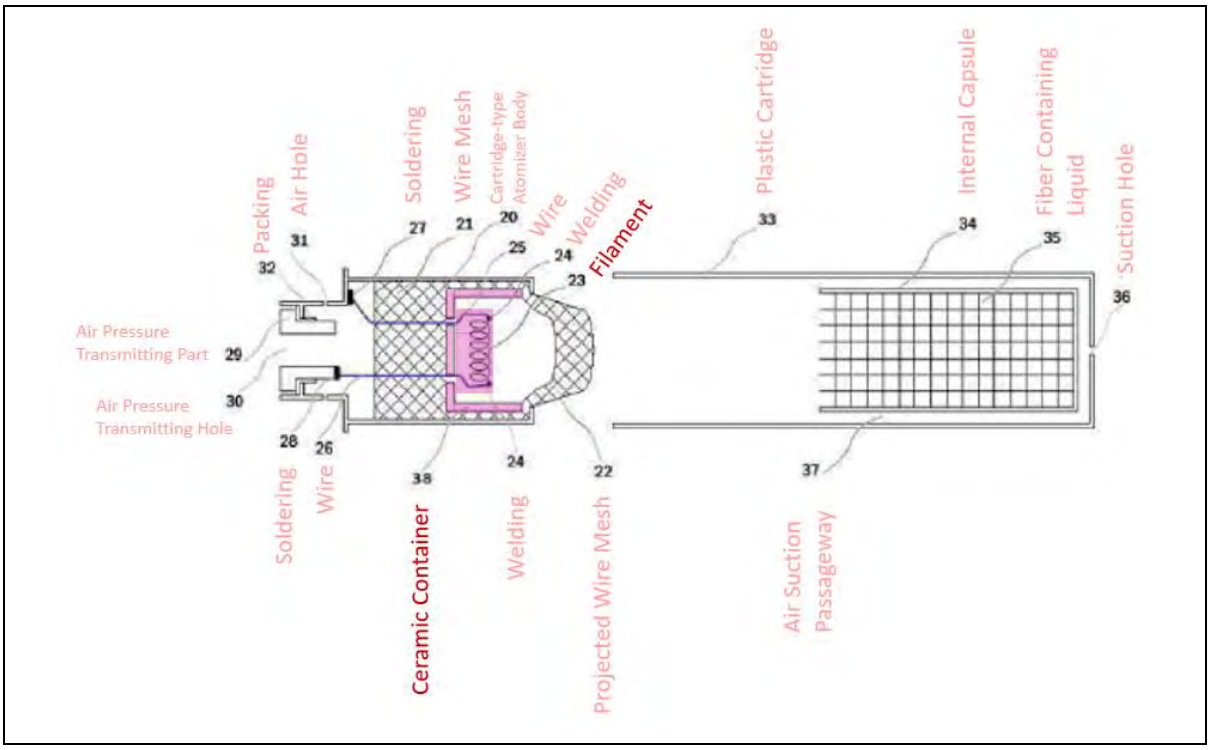


See JX-0631 (Han '364 certified English Translation) at Fig. 1; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 384-385.

Han '364 also discloses an alternative atomizer design with a filament 23 that is also coiled. *See* [0014]; *see also id.*, at FIG. 8 (annotated in pink):

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See JX-0631 (Han '364 certified English Translation) at Fig. 8; *see also* JX-0632C (Leinsing Opening Rpt.) at ¶ 387.

6. Red Dragon in view of Fang '044 and Wang '927 – '864 Patent, Claim 1[h]

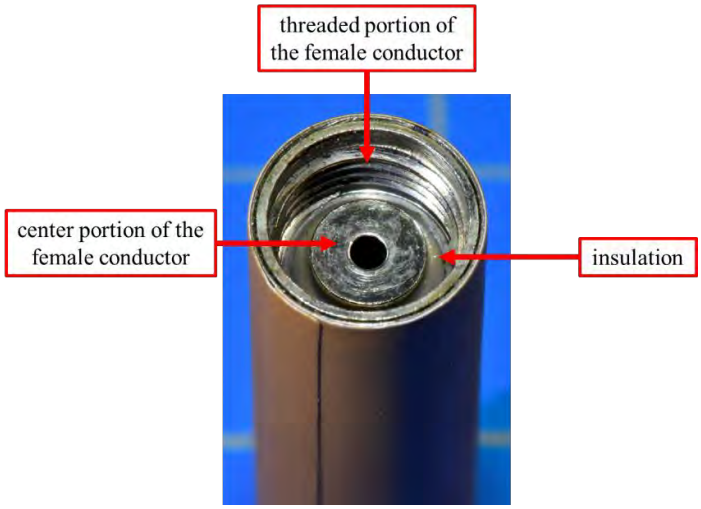
The evidence will show that Red Dragon in view of Fang '044 and Wang '927 discloses or renders obvious this limitation. *See* JX-0638 (Leinsing Opening Rpt., Appx. E) at ¶¶ 276-281; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 461-505; RX-0074 (Photos of Red Dragon Kit # 1); RX-0076 (Photos of Red Dragon Kit # 2); RX-1309 (Red Dragon Product 3 Piece Kit (Evans 2)); RX-0077 (CT scans of Red Dragon Kit #2); RX-0098 ([vg-project] Red Dragon - Cartridge_Pen Package.zip (Native)); RX-0099 ([vg-project] Red Dragon - Pen.zip (Native)); RPX-0009 (Red Dragon 3-Piece Kit); RPX-0010 (Red Dragon 3-Piece Kit (Sealed); JX-0595 (Fang '044); JX-0594 (Wang '927). NJOY and its expert do not dispute that the Red Dragon discloses or renders obvious

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this claim limitation. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 916-937; CX-2726C (Vallee Reb. Rpt.) at Appx. E, ¶ 114.

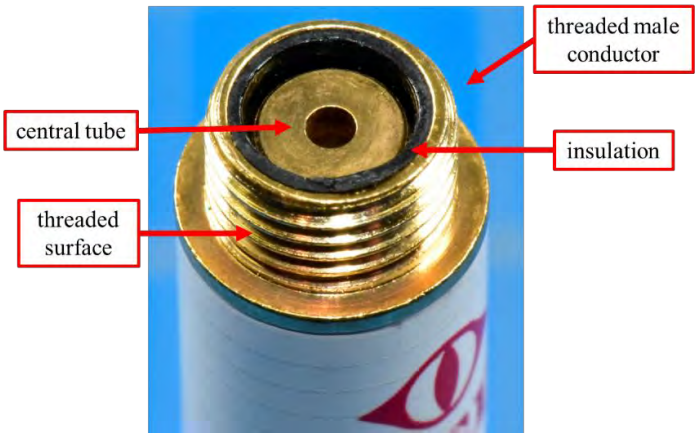
The evidence will show that one end of the Red Dragon's heating coil is connected to the central tube of the threaded female conductor while the other end is connected to the threaded portion of the female conductor. *See, e.g.,* JX-0407 (Red Dragon Photos) at JX-0507.30; RX-0074 (Photos of Red Dragon Kit #1) at RX-0074.24; *see also* JX-0638C (Leinsing Opening Rpt., Appx. E) at ¶¶ 277-281. The central tube of the threaded female conductor is insulated from the threaded portion of the female conductor. *Id.* Further, Mr. Leinsing will opine that when the Red Dragon is turned on when a user draws from the lid, current flows from the battery to the cartomizer via the central tube and the threaded portion of the female threaded conductor. *Id*



See RX-0074 (Photos of Red Dragon Kit #1) at RX-0074.24 (annotated in red); *see also* JX-0638C (Leinsing Invalidity Rpt., Appx. E) at ¶ 277.

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See RX-0074 (Photos of Red Dragon Kit #1) at RX-0074.96 (annotated in red); *see also* JX-0638C (Leinsing Invalidity Rpt., Appx. E) at ¶ 277.

7. Smoke Fifty-One Duo in view of Fang '044 and Wang '927 – '864 Patent, Claim 1[h]

The evidence will show that Smoke Fifty-One Duo in view of Fang '044 and Wang '927 discloses or renders obvious this limitation. *See* JX-0636C (Leinsing Opening Rpt., Appx. D) at ¶¶ 268-272; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 413-460; RX-0130C (Declaration of Yardimici); JX-0595 (Fang '044); JX-0594 (Wang '927). NJOY and its expert do not dispute that Smoke Fifty-One Duo discloses or renders obvious this claim limitation. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 897-916; CX-2726C (Vallee Reb. Rpt.) at Appx. D, ¶ 71.

The evidence will show that one end of the Smoke Fifty-One Duo heating coil is connected to the central tube of the threaded female conductor while the other end is connected to the threaded portion of the female conductor. *See, e.g.,* RX-0130C (Yardimici Declaration) at RX-0130C.16 (annotated in red); RX-0129C (Wang Declaration) at RX-0129C.40 (annotated in red); *see also* JX-0636C (Leinsing Opening Rpt., Appx. D) at ¶¶ 268-272. The central tube of the threaded female conductor is insulated from the threaded portion of the female conductor. *Id.* Further, Mr. Leinsing will opine that when the Red Dragon is turned on when a user draws from the lid, current

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flows from the battery to the cartridge via the central tube and the threaded portion of the female threaded conductor. *Id*

8. NJOY NPRO in view of Wang '554, Fang '044, and Wang '927 – '864 Patent, Claim 1[h]

The evidence will show that NJOY NPRO in view of Wang '554, Fang '044, and Wang '927 discloses or renders obvious this limitation. *See* JX-0640C (Leinsing Opening Rpt., Appx. G) at ¶¶ 274-275; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 548-612; RX-0082 (Photos of NJOY NPRO); JX-0404 (CT Scans of NJOY NPRO); RPX-0007 (NJOY NPRO Sample); RX-0095 (CT Scan Raw Data of NJOY NPRO); RX-0005 (Wang '554); JX-0595 (Fang '044). NJOY and its expert do not dispute that the NJOY NPRO discloses or renders obvious this claim limitation. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 963-980; CX-2726C (Vallee Reb. Rpt.) at Appx. G, ¶ 208.

The evidence will show that when the user draws from the mouthpiece end of the NJOY NPRO e-cigarette, the e-cigarette will be turned on so that current can flow from the battery in the power source to the heating coil in the cartridge. *See, e.g,* RX-0110C; RX-0109C (NJOY NCIG User Guide); *see also* JX-0640C (Leinsing Opening Rpt., Appx. G) at ¶¶ 274-275; RX-0082 (Photos of NJOY NPRO); JX-0404 (CT Scans of NJOY NPRO); RPX-0007 (NJOY NPRO Sample); RX-0095 (CT Scan Raw Data of NJOY NPRO). The central tube of the threaded male conductor is insulated form the threaded surface of the threaded male conductor. *Id.; see also* JX-0632C (Leinsing Invalidity Rpt) at ¶¶ 581-583, 610-612. When the NJOY NPRO is used, current flows from the battery of the power source section through the central tube and the threaded surface of the threaded male conductor. *Id.* The heating coil then heats up to vaporize the e-liquid in the housing. *Id.*

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[redacted]

9. NJOY NCIG in view of Wang '554, Fang '044, and Wang '927 – '864 Patent, Claim 1[h]

For the same reasons why NJOY NPRO in view of Wang '554, Fang '044, and Wang '927 discloses or renders obvious this limitation, the NJOY NCIG in view of Wang '554, Fang '044, and Wang '927 also discloses or renders obvious this limitation. *See* JX-0632C (Leinsing Invalidity Rpt.) at ¶¶ 584-612; JX-0640C (Leinsing Invalidity Rpt., Appx. G) at ¶¶ 274-275; RPX-0006 (NJOY NCIG Sample); RX-0084 (Photos of NJOY NCIG); JX-0402 (CT Scans of NJOY NCIG); RX-0090 (CT scan of NCIG); RX-0109C (NJOY NCIG User Guide); JX-0482C (NJOY Welcomes to the Tobacco Plus Expo 2009), JX-0482C.3.

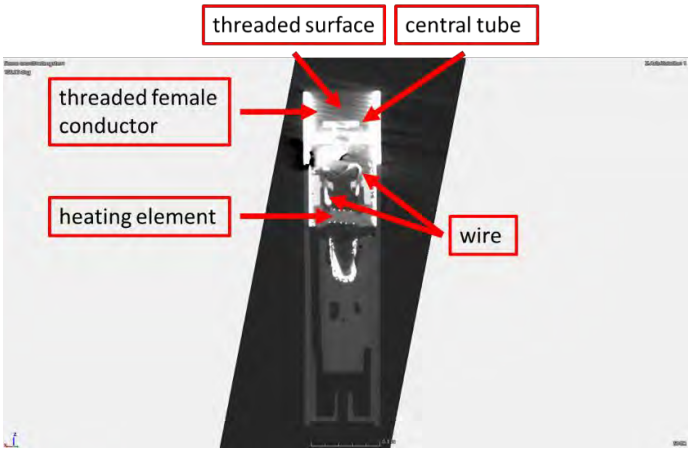
10. Cigarette Electronique – '864 Patent, Claim 1[h]

The evidence will show that Cigarette Electronique discloses or renders obvious this limitation. *See* JX-0639C (Leinsing Opening Rpt., Appx. F) at ¶¶ 332-334; JX-0632C (Leinsing Opening Rpt.) at ¶¶ 506-547; RX-0072 (Photos of Cigarette Electronique); RPX-0011 (Cigarette Electronique Kit).. NJOY and its expert do not dispute that this limitation is met by the Cigarette Electronique. *See* CX-2110 (Complainant's First Sup. Validity Contentions (03/12/2024)) at 937-963; CX-2726C (Vallee Reb. Rpt.) at Appx. F, ¶ 167.

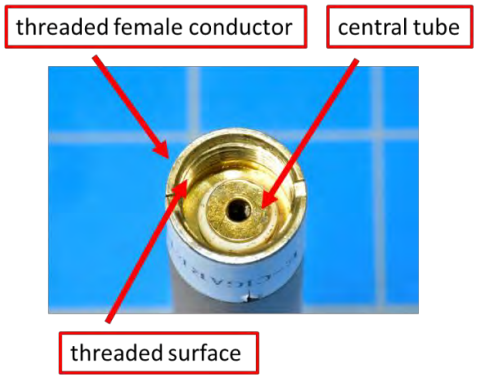
For example, the evidence will show the heating coil in the Cigarette Electronique is a helical-shaped resistive wire in the atomizer of the cartridge section. One end of the heating coil is connected to the central tube of the threaded female conductor, while the other end is connected to the threaded surface of the threaded female conductor. The central tube of the threaded female conductor is insulated from the threaded surface of the threaded female conductor. When the Cigarette Electronique is used, current flows from the battery of the power source section through the central tube and the threaded surface of the threaded female conductor. The heating coil then heats up to vaporize the e-liquid in the housing.

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See JX-0401 (Photos of Cigarette Electronique) at JX-0401.5 (annotated in red); *see also* JX-0639C (Leinsing Opening Rpt., Appx. F) at ¶¶ 332-334.



See RX-0072 at RX-0072.36(annotated in red).

11. Fuma Prototype – '864 Patent, Claim 1[h]

The Evidence will show that the Fuma Prototype discloses this limitation. *See, e.g.,* Leinsing Opening Rpt., Appx. H) at ¶¶ 243-245; NJOY's 13th Supp. ROG Responses; RX-0078 (Photos of Fuma Starter Kit); RX-0079 (CT scans of Fuma Starter Kit).

For example, when a user draws from the cap, current flows from the Fuma Battery to the Fuma Cartridge via the threaded conductors and powers the heating coil.

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