

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NJOY, LLC,
NJOY HOLDINGS, INC.,
Petitioners

v.

JUUL LABS, INC.,
Patent Owner

Case No. IPR2024-00231
U.S. Patent No. 10,130,123

PATENT OWNER'S PRELIMINARY RESPONSE

PUBLIC VERSION

PUBLIC VERSION**TABLE OF CONTENTS**

	<u>Page</u>
I. INTRODUCTION	1
II. LEVEL OF ORDINARY SKILL IN THE ART	3
III. CLAIM CONSTRUCTION	4
IV. GROUND 1: PETITIONERS FAIL TO ESTABLISH THAT WORM ANTICIPATES THE CHALLENGED CLAIMS.....	5
A. Worm does not anticipate an “air flow path passing from an air inlet, through the channel and to a heater and an outlet of a mouthpiece”	7
V. GROUND 2: PETITIONERS FAIL TO ESTABLISH THAT WORM RENDERS OBVIOUS THE CHALLENGED CLAIMS.....	16
VI. GROUND 3: PETITIONERS FAIL TO ESTABLISH THAT WORM IN VIEW OF LEVITZ RENDERS OBVIOUS THE CHALLENGED CLAIMS.....	20
VII. GROUND 4: PETITIONERS FAIL TO ESTABLISH THAT THORENS AND WEIGENSBERG RENDER OBVIOUS THE CHALLENGED CLAIMS.....	25
A. A POSITA Would Not Be Motivated to Combine Thorens and Weigensberg.....	26
B. Petitioners’ combination does not render obvious “a gasket around the pressure sensor”.....	33
VIII. GROUNDS 5-8 FAIL FOR THE SAME REASONS	34
IX. Objective Evidence Further Demonstrates That the ’123 patent Was Not Obvious.....	36

PUBLIC VERSION

A.	JLI's products are coextensive with the claimed invention and thus a strong nexus exists between the invention and the objective evidence.....	37
1.	14[pre]: A vaporizer device body comprising:	38
2.	14[a]: a cartridge receptacle configured to insertably receive a cartridge containing a vaporizable material;.....	39
3.	14[b]: a pressure sensor configured to output sensor readings	41
4.	14[c] wherein a first side of the pressure sensor is exposed to a sealed air flow path and a second side of the pressure sensor is exposed to a device air path open to ambient pressure, ...	43
5.	14[d]: the sealed air flow path comprising a channel formed between an interior surface of the cartridge receptacle and an exterior surface of the cartridge,.....	46
6.	14[e]: the sealed air flow path passing from an air inlet, through the channel and to a heater and an outlet of a mouthpiece within the cartridge; and..	47
7.	14[f]: a gasket around the pressure sensor, the gasket configured to seal the device air path from the sealed air flow path.	50
B.	Long-felt Need.....	53
C.	Unexpected Results.....	57
D.	Industry Praise	59
E.	Commercial Success	60
F.	Copying	61

PUBLIC VERSION

X.	CONCLUSION	65
----	------------------	----

PUBLIC VERSION**EXHIBIT LIST**

No.	Exhibit
2001	Declaration of John Collins, Ph.D.
2002	<i>Curriculum vitae</i> of John Collins, Ph.D.
2003	JUUL System FDA Premarket Tobacco Product Application, produced as JLI-NJOY-ITC1368-01159601
2004	Photo of JUUL System, produced as JLI-NJOY-ITC1368-01945391 ¹
2005	Photo of JUUL System, produced as JLI-NJOY-ITC1368-02013494
2006	Photo of JUUL System, produced as JLI-NJOY-ITC1368-02013502

¹ Several exhibits listed here were produced in the parallel ITC investigation, *In the Matter of: Certain Vaporizer Devices, Cartridges Used Therewith and Components Thereof*, ITC Investigation No. 337-TA-1368. Although those exhibits are labeled with the designation “Confidential Business Information Subject to Protective Order,” Patent Owner certifies that among these exhibits, with the exception of Exhibits 2003, 2025, 2026, and 2041 (which will be filed under seal), none of them contain Confidential Business Information. For the avoidance of doubt, Exhibit 2001, Dr. Collins’ declaration, describes and quotes the aforementioned confidential exhibits from the parallel litigation and therefore will also be filed under seal.

PUBLIC VERSION

2007	Photo of JUUL System, produced as JLI-NJOY-ITC1368-01945377
2008	Photo of JUUL System, produced as JLI-NJOY-ITC1368-01945372
2009	“American Cancer Society Position Statement on Electronic Cigarettes,” produced as JLI-NJOY-ITC1368-02013557
2010	World Health Organization, Tobacco Fact Sheet, retrieved from https://www.who.int/news-room/fact-sheets/detail/tobacco
2011	Gottlieb, “Healthy Innovation, Safer Families: FDA’s 2018 Strategic Policy Roadmap,” produced as JLI-NJOY-ITC1368-02013568
2012	Nitzkin, “The Case in Favor of E-Cigarettes for Tobacco Harm Reduction,” Int. J. Environ. Res. Public Health 2014, produced as JLI-NJOY-ITC1368-02013655
2013	Gottlieb & Zeller, “A Nicotine-Focused Framework for Public Health,” N Engl J Med 2017, produced as JLI-NJOY-ITC1368-02013549
2014	Hall & Doran, “How Much Can the USA Reduce Health Care Costs by Reducing Smoking?” PLoS Med 13 (May 10, 2016)
2015	Center for Disease Control and Prevention, Smoking & Tobacco Use: Costs and Expenditures, retrieved from https://www.cdc.gov/tobacco/data_statistics/fact_sheets/fast_facts/cost-and-expenditures.html
2016	Center for Disease Control and Prevention, Smoking Cessation: Fast Facts, retrieved from https://www.cdc.gov/tobacco/data_statistics/fact_sheets/cessation/smoking-cessation-fast-facts/index.html
2017	Chaiton et al., “Estimating the number of quit attempts it takes to quit smoking successfully in a longitudinal cohort of smokers,” BMJ Open 2016
2018	Lee & Kahende, “Factors Associated With Successful Smoking Cessation in the United States, 2000,” American Journal of Public Health, Vol. 97, No. 8 (Aug. 2007)
2019	Tolentino, “The Promise of Vaping and the Rise of JUUL,” The New Yorker, May 14, 2018, produced as JLI-NJOY-ITC1368-02013685

PUBLIC VERSION

2020	Cig20-schematic (Jan. 11, 2012), produced as JLI-NJOY-ITC1368-02013708
2021	Center for Disease Control and Prevention, Electronic Cigarettes, produced as JLI-NJOY-ITC1368-02013560
2022	Brose et al, “Is the use of electronic cigarettes while smoking associated with smoking cessation attempts, cessation and reduced cigarette consumption? A survey with a 1-year follow-up,” <i>Addiction</i> 110 (2015)
2023	U.S. Pat. Pub. No. 2009/0272379
2024	Corrected Post-Trial Proposed Findings of Fact and Conclusions of Law of Respondents Altria Group, Inc. and JUUL Labs, Inc., <i>In the Matter of Altria Group, Inc.</i> , before the FTC Office of Administrative Law Judges, Dkt. No. 9393
2025	Excerpts from Deposition Transcript of Adam Bowen, ITC No. 337-TA-1368 (Dec. 14, 2023)
2026	Excerpts from Deposition Transcript of James Monsees, ITC No. 337-TA-1368 (Jan. 18, 2024)
2027	Hines, “Vape King Juul Wants Everyone To Chill Out,” <i>Bloomberg Businessweek</i>
2028	Peebles, “Popular e-cigarette Juul’s sales have surged almost 800 percent over the past year,” <i>CNBC</i> (Jul. 2, 2018), produced as JLI-NJOY-ITC1368-02013602
2029	Zaleski, “E-Cigarette Maker Juul Labs Is Raising \$1.2 Billion,” produced as JLI-NJOY-ITC1368-02013564
2030	Chambers, “Imperial Takes on Juul as Big Tobacco Faces Upstart Rival,” <i>Bloomberg</i> (Jul. 4, 2018)
2031	Robinson, “How a startup behind the ‘iPhone of vaporizers’ reinvented the e-cigarette and generated \$224 million in sales in a year,” <i>Business Insider</i> (Nov. 21, 2017), produced as JLI-NJOY-ITC1368-02013607
2032	“Our Evening With blu: Takeaways from Imperial Brands’ E-Cig Event,” Wells Fargo Securities Equity Research (Mar. 28, 2018), produced as JLI-NJOY-ITC1368-02013571
2033	“Tobacco: Latest Consumer Anecdotes Still Consistent: iQOS and JUUL Stand Out,” <i>Piper Jaffray</i> (Feb. 14, 2018)

PUBLIC VERSION

2034	“Nielsen: Tobacco All Channel Data Thru 8/10 – Cig Vol Declines Hold Steady,” Wells Fargo Securities Equity Research (Aug. 20, 2019), produced as JLI-NJOY-ITC1368-02013619
2035	“Innovation Invigorates Inhalables,” Cowen and Company Equity Research (July 22, 2016), produced as JLI-NJOY-ITC1368-02013586
2036	“Big Tobacco Finds a Friend in the FDA, Today,” Cowen Equity Research (Sep. 12, 2018), produced as NJOYITC00148578
2037	“Three Key Take-aways From Our JUUL City Scanner Analysis,” Morgan Stanley (Sep. 10, 2018)
2038	“Is JUUL Hype Overblown?” Morgan Stanley (Jun. 26, 2018), produced as JLI-NJOY-ITC1368-01332225
2039	“Latest US Scanner Data Show Improving Trends for Cigarettes, JUUL,” Piper Jaffray (May 15, 2018)
2040	“PAX Finds Its Crown JUUL,” Cowen and Company (Sept. 22, 2016)
2041	Excerpts from Deposition Transcript of Vittal Kadapakkam, ITC No. 337-TA-1368 (Jan. 9, 2024)
2042	<i>In the Matter of Certain Electronic Nicotine Delivery Systems and Components Thereof</i> , Investigation No. 337-TA-1139, Final Initial Determination
2043	August 7, 2018 Letter to Dr. S. Gottlieb from American Academy of Pediatrics et al.
2044	“Top Juul-Compatible Pods on the Market,” Vaper City: Price Comparisons for Vapers (Oct. 2, 2018), produced as JLI-NJOY-ITC1368-02013546
2045	Photo of JUUL System, produced as JLI-NJOY-ITC1368-01945383.
2046	Photo of JUUL System, produced as JLI-NJOY-ITC1368-02013522.
2047	“Juul Compatible Pods,” Zalt, retrieved Nov. 6, 2018, produced as JLI-NJOY-ITC1368-02013548
2048	Photo of JUUL System, produced as JLI-NJOY-ITC1368-02013520.

PUBLIC VERSION

2049	Photo of JUUL System, produced as JLI-NJOY-ITC1368-01945388.
2050	Photo of JUUL System, produced as JLI-NJOY-ITC1368-01945378.
2051	Photo of JUUL System, produced as JLI-NJOY-ITC1368-01945387.
2100	Proposed Stipulated Protective Order (redline)
2101	Proposed Stipulated Protective Order

PUBLIC VERSION**I. INTRODUCTION**

Patent Owner JUUL Labs, Inc. (“Patent Owner” or “JLI”) manufactures the highly-successful JUUL System, a cartridge-based, electronic cigarette system for delivering nicotine via vapor. U.S. Patent No. 10,130,123 (the “’123 patent”) covers several novel ideas developed by JLI that are embodied in Patent Owner’s highly-successful JUUL System. Petitioners are competitors to JLI who have been accused of infringing the ’123 patent and now seek to invalidate it.

Introduced in 2015, the JUUL System had an immediate impact on the Electronic Nicotine Delivery Systems (“ENDS”) market. For many years, there had been a long-felt need for an alternative to conventional combustible cigarettes, given the known adverse health effects of smoking. While several companies had already introduced ENDS products by 2015, they took the approach of mimicking the shape, look, and feel of conventional cigarettes—yet this failed to attract much consumer interest.

JLI took a different approach. Its JUUL System abandoned traditional cigarette iconography altogether—instead, the JUUL System provided the user with a fundamentally different user experience. This included vapor

PUBLIC VERSION

production and nicotine delivery that satisfied smokers' cravings and that were enabled through practice of the '123 patent.

As a result of this approach, customers quickly flocked to the JUUL System. By 2018, JLI had reached over 70% market share in the ENDS market and nearly \$1 billion in annual revenue. The JUUL System also constituted over 90% of the growth in revenue within the entire market. Competitors, such as Petitioners' parent company Altria Group, Inc. (who is a real party-in-interest), heaped extensive praise on JLI's approach, describing it as "an innovative breakthrough" with a "simple, intuitive, easy-to-use product design." The industry soon shifted from cigarette look-alikes (so-called "cig-a-likes") to the pod-based design of the JUUL System, including Petitioners who released their first pod-based product, the NJOY Ace, in 2018.

In seeking to invalidate the independent claims of the '123 patent, Petitioners rely on the Worm reference and the combination of the Thorens and Weigensberg references—references which used the unsuccessful, "cig-a-like" approach. Worm, however, does not disclose the claimed air flow channel that is between a cartridge and device body. Instead, Worm makes very clear that air flows through a different channel that does not read in the

PUBLIC VERSION

claims of the '123 patent. Nor would the claimed channel be obvious, since as explained by Patent Owner's expert, Dr. Collins, it would be undesirable to, as proposed by Petitioners, add another air flow channel whose size could not be controlled.

As for the Thorens-Weigensberg combination, Petitioners propose significant changes to the electrical wiring of the Thorens device as well as the removal of several important control circuits merely to add Weigensberg's differential pressure sensor for detecting inhalation—an unnecessary change because Thorens already effectively detects inhalation using an air flow sensor.

And the Petition fails for yet another reason—it has failed to consider the impact of any secondary considerations, including the well-known commercial success, industry praise, and copying of the JUUL System products, which are coextensive with at least the challenged claims 14 and 27. In view of these deficiencies, the Board should deny institution.

II. LEVEL OF ORDINARY SKILL IN THE ART

Petitioners propose that the level of a POSITA at the time of the '123 patent “would have at least a B.S. degree in Mechanical Engineering, Electrical Engineering, Industrial Design, Product Design, or similar field,

PUBLIC VERSION

with at least two years of industry experience in one of these fields, and such POSA would have been familiar with electrically powered vaporizing articles, their components or the underlying technologies.” Pet. 7.

Patent Owner proposes that a POSITA at the time of the ’123 patent would have had a B.S. in mechanical engineering, electrical engineering, or an equivalent degree, and either at least two years of experience designing electro-mechanical consumer products or an advanced degree in mechanical engineering, electrical engineering, or an equivalent field. Ex. 2001, ¶19.

Patent Owner’s arguments herein apply regardless of which definition of a POSITA is adopted. *Id.*, ¶¶20-21. Patent Owner’s expert, Dr. John Collins, was a POSITA at the time of the ’123 patent under either definition. *Id.*, ¶22. Petitioner also notes that Patent Owner’s expert, Dr. McAlexander, has no experience with airflow mechanics, which is claimed in the Challenged Claims. Ex. 1002.

III. CLAIM CONSTRUCTION

In an *inter partes* review, claim terms receive their plain and ordinary meaning in light of the specification of the patent in which they appear, the same standard as used in district court. 37 C.F.R. § 42.100(b); *see Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005). Besides the term “pressure

PUBLIC VERSION

value,” Patent Owner contends that the terms of the ’123 patent can be given their plain and ordinary meaning. Ex. 2001, ¶34. However, the parties have agreed that term is no longer in dispute in the co-pending ITC investigation. In any case, at least in this preliminary stage, it is not necessary for the Board to resolve this construction. Ex. 2001, ¶¶36-37.

IV. GROUND 1: PETITIONERS FAIL TO ESTABLISH THAT WORM ANTICIPATES THE CHALLENGED CLAIMS

Petitioners contend in Ground 1 that Worm anticipates the independent claims of the ’123 patent. Anticipation “requires that the four corners of a single, prior art reference document describe every element of the claimed invention, either expressly or inherently.” *Advanced Display Systems, Inc. v. Kent State University*, 212 F.3d 1272, 1282 (Fed. Cir. 2000). Anticipation also requires disclosure of the elements “arranged as in the claim”—i.e. without combining disparate embodiments. *NetMoneyIN, Inc. v. Verisign, Inc.*, 545 F.3d 1359, 1371 (Fed. Cir. 2008).

As an initial matter, Petitioners’ Worm-based grounds fail because Petitioners rely on a combination of multiple, disparate embodiments within Worm without any assertion that such embodiments would be obvious to combine. *NetMoneyIN, Inc. v. Verisign, Inc.*, 545 F.3d 1359, 1371 (Fed. Cir. 2008). For example, for limitations [14.A] and [14.B], Petitioners rely on the

PUBLIC VERSION

embodiment of Figure 2 (Pet. 28-29), whereas for limitation [14.C], which requires a pressure sensor, Petitioners rely on Figure 5. Pet. 32. Furthermore, for limitations [14.D], [14.E], and [14.F], Petitioners rely on the different embodiment of Figure 7. Pet. 34-45. However, Petitioners provide no analysis for how these two different embodiments could be combined—especially since the Figure 2 embodiment uses a flow sensor instead of a pressure sensor. Ex. 1004, ¶54.

In any case, Worm does not expressly or inherently disclose a “sealed air flow path passing from an air inlet, through the channel and to a heater and an outlet of a mouthpiece” where the channel is “formed between an interior surface of the cartridge receptacle and an exterior surface of the cartridge.” Ex. 2001, ¶38. Instead, Worm expressly teaches that air enters the device through a different air inlet and takes a different path to the mouthpiece that does not pass through any such channel between the cartridge and the receptacle as claimed. Ex. 2001, ¶39. The “air inlet” and “channel” that Petitioners rely on are not disclosed in Worm. Petitioners assume the air inlets are placed in a location that would meet the claim limitations of the ’123 Patent, essentially arguing anticipation based on hindsight, while

PUBLIC VERSION

simultaneously ignoring Worm’s express disclosures that *don’t* meet the claims. *Id.*

A. Worm does not anticipate an “air flow path passing from an air inlet, through the channel and to a heater and an outlet of a mouthpiece”

The independent claims 14 and 27 require a specific “air flow path” that originates from an air inlet, travels through a channel “formed between an interior surface of the cartridge receptacle and an exterior surface of the cartridge” to a heater, and then goes out of a mouthpiece. Ex. 2001, ¶40.

Worm does not disclose any such “air flow path” that travels through such a channel. Ex. 2001, ¶41. Instead, Worm discloses that when air is drawn from the mouthpiece, it “causes air to enter the air inlet channel 788 ... through one or more air inlet apertures 789 and flow into the air flow entry 741a ... from which the drawn air passes through the interior of the base 740 [which is in cartridge 704] and into the cartridge 704,” after which the airflow “proceed[s] ... toward the mouthend of the cartridge.” Ex. 1004, ¶75. The airflow path described in Worm is illustrated below in this annotated version of Figure 7. Ex. 2001, ¶42.

PUBLIC VERSION

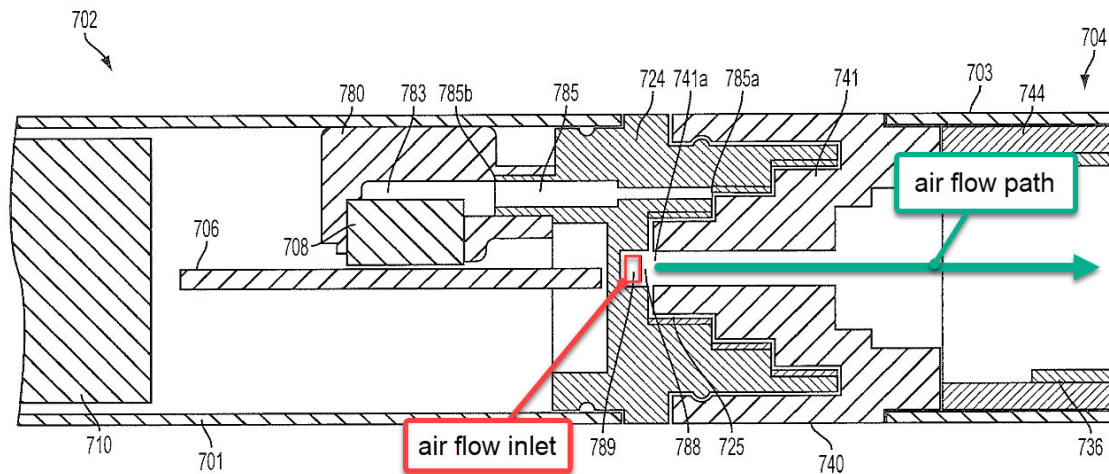


FIG. 7

As can be seen, Worm's express airflow path does not pass through a channel formed between the cartridge and the receptacle as claimed. Instead, the airflow traverses through the interior of the control body 702 and proceeds straight into the central air flow entry 741 hole at the bottom of the cartridge 704. Ex. 2001, ¶43. For example, as shown in the separate embodiment of Figures 3-6 (namely, the cross-section of Figure 6B), air enters through apertures 389a and 389b, then travels toward the middle of the air inlet channel 388 where a wider portion of the channel is formed.

PUBLIC VERSION

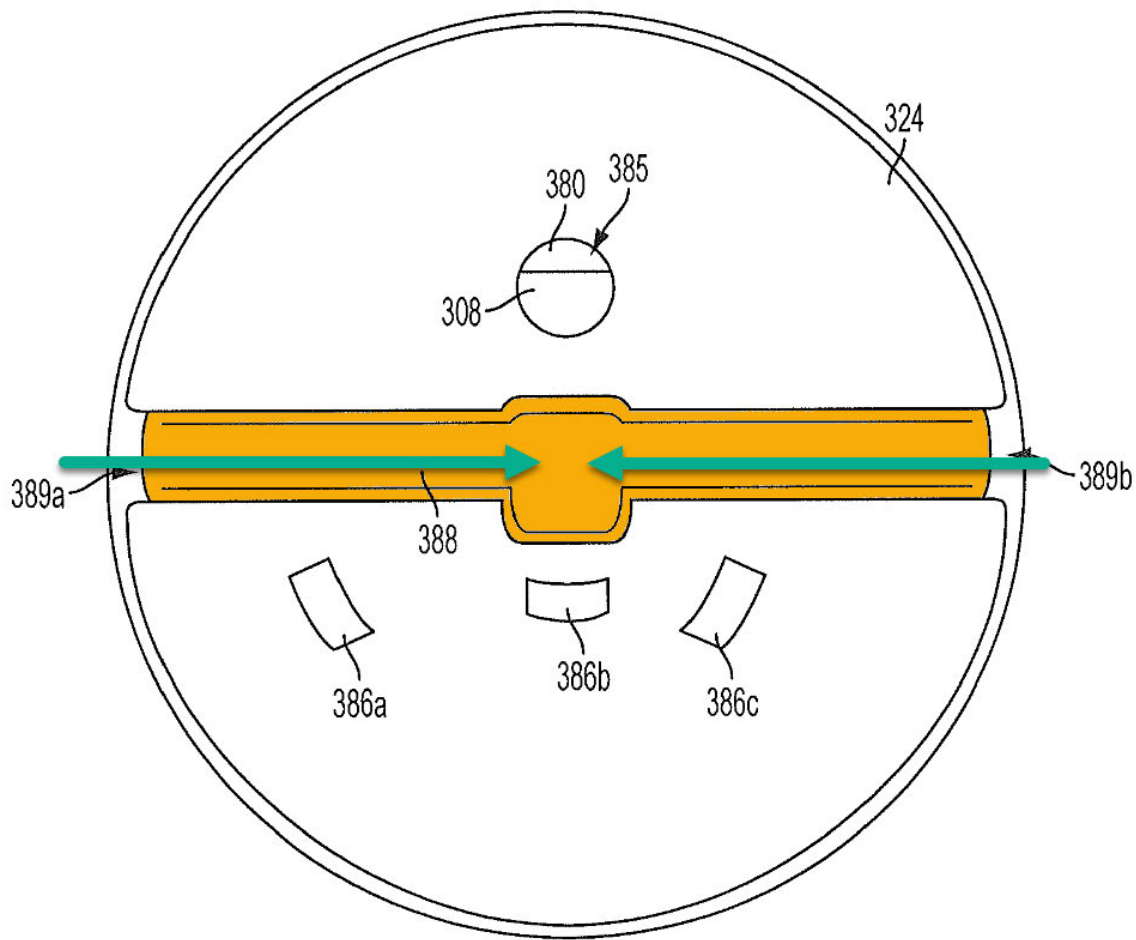


FIG. 6B

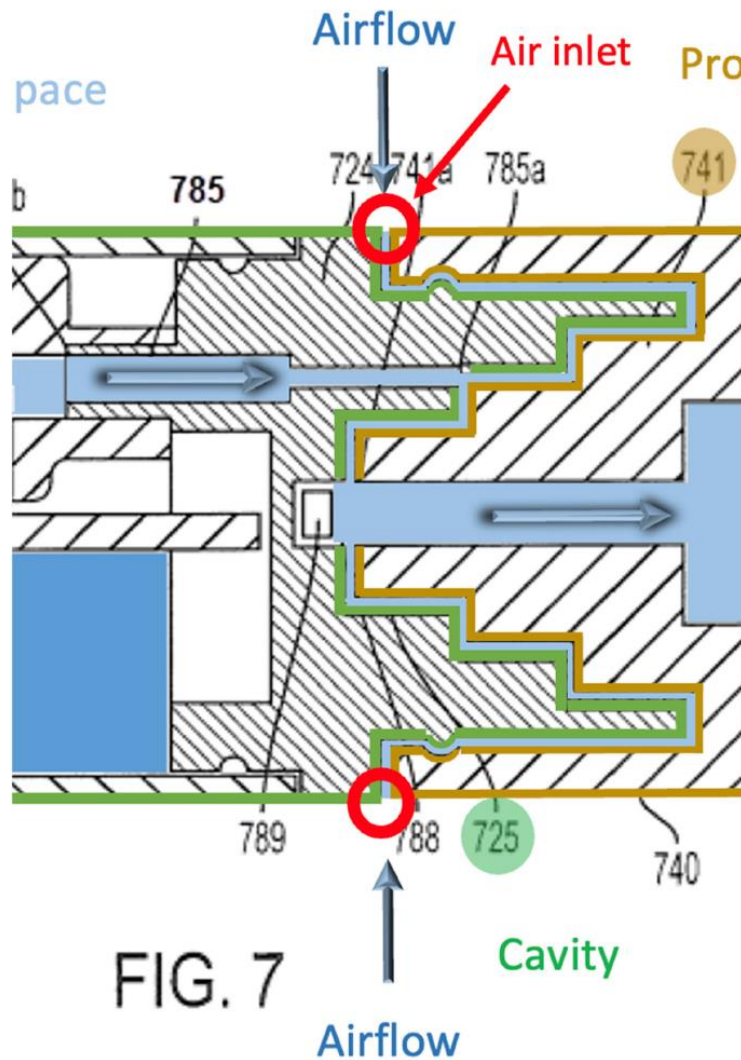
In arguing otherwise, Petitioners make several baseless assumptions that are not disclosed within the four corners of Worm, and are contrary to Worm’s express teachings, as demonstrated by Petitioners’ heavily annotated version of Figure 7. Pet. 43; Ex. 2001, ¶44. *First*, Petitioners assert that “Worm depicts the non-airtight interface (channel) as a uniform gap between

PUBLIC VERSION

cartridge 704 and control body 702.” Pet. 17. This is in direct conflict with Worm what teaches and a POSITA would understand. Rather than being a uniform gap, this space is where the electrical contacts in the cartomizer and body must touch each other. Ex. 1004, ¶58; Ex. 2001, ¶45.

Second, Petitioners assume that there are additional air inlets beyond the “one or more air inlet apertures 789” already taught in Worm. Ex. 1004, ¶75. Petitioners, however, do not answer the critical question underlying this assumption: if there is an existing air inlet, why are additional air inlets passing air along the winding gap—assuming such a gap even exists—necessary? Ex. 2001, ¶46. *Third*, Petitioners assume that air flows from these additional air inlets through a winding passage into the center of the device. However, Worm does not disclose anywhere that such additional air inlets or passage exist, and the fluid mechanics of such a passageway, winding up and down along the protrusions forming the “cavity” in Worm, would cause a reduction in airflow at every turn, such that the primary air inlet passageway, already taught in Worm, would control. Ex. 2001, ¶47.

PUBLIC VERSION



As an initial matter, it is well-settled that a patent's figures generally are not intended to convey specific dimensions or scale. *Hockerson-Halberstadt, Inc. v. Avia Group Int'l*, 222 F.3d 951, 956 (Fed. Cir. 2000) (“[P]atent drawings do not define the precise proportions of the elements and **may not be relied on to show particular sizes** if the specification is completely silent on the issue.”). Nevertheless, in the face of a specification that explicitly

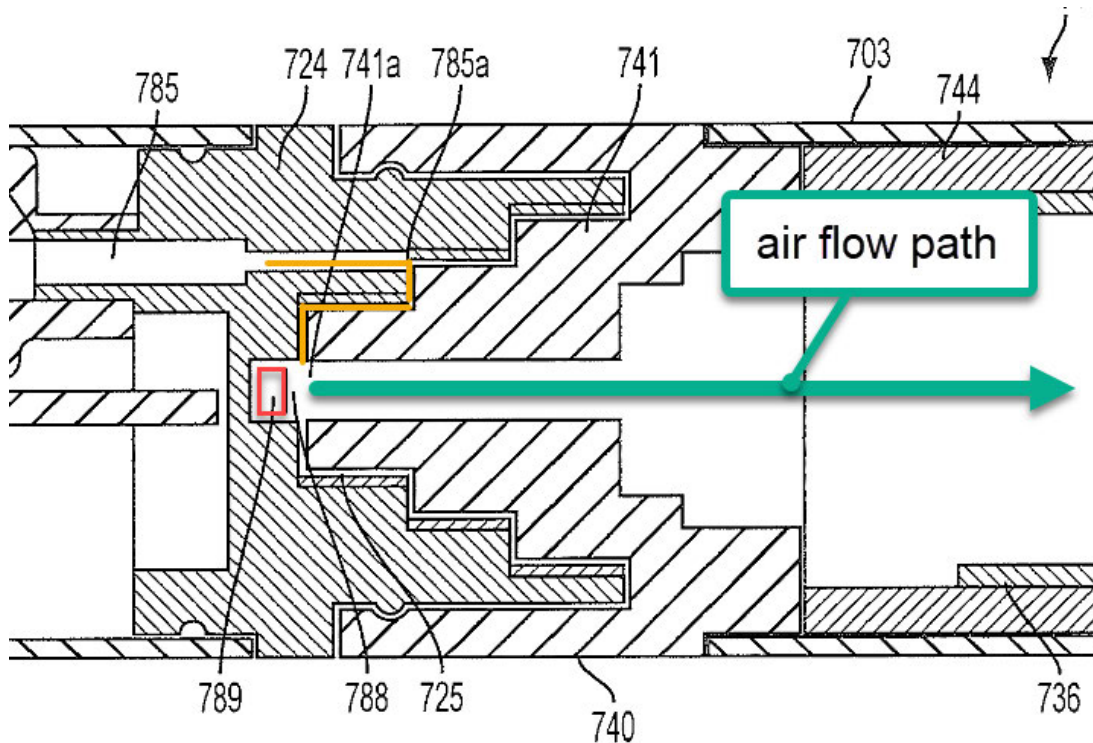
PUBLIC VERSION

describes that the two faces of the supposed uniform gap must touch each other to make an electrical contact and is completely silent on the existence and function of the alleged air inlets or gaps, Petitioners still argue that Figure 7 of Worm somehow discloses air inlets and a gap that is used for airflow despite the specification disclosing multiple air inlets 389/789 that allow air to flow into the cartridge. Nowhere does Worm label or describe the alleged inlets or gap, let alone an inlet or gap through which air flows. Ex. 2001, ¶¶48-49. Worm cannot anticipate the limitation when Petitioners' interpretation of Worm is contrary the specification's explicit description and a POSITA's clear understanding.

Petitioners rely on Worm's disclosure of "channel 725" connected to "pressure channel 785," which is marked orange in the below annotated figure. Pet. 36 (citing Ex. 1004, ¶76); Ex. 2001, ¶50. As Worm explains it, this path allows the pressure drop from the inhalation to be "communicated to the pressure channel," and "does not substantially form an air tight connection." Ex. 1004, ¶76. There is simply no disclosure or need for the airflow path to extend past the pressure chamber—indeed, Worm states that the pressure chamber is an "isolated segment of the device." *Id.*, ¶5. Moreover, unlike the airflow path from the air inlet 789 to the user's mouth

PUBLIC VERSION

which impacts the user draw experience, the uniformity of the path to the pressure chamber is not important as the amount of air movement required is negligible. Ex. 2001, ¶51.



A POSITA would not understand that the depicted inlet and gap is for airflow because Worm does not provide **any** disclosure about the presence, size, or purpose of Petitioners' inlet or gap. Ex. 2001, ¶52. A POSITA would instead understand that airflow travels through the inlets and passages as already described in Worm (namely, the air inlet aperture 789). *Id.* In addition, a POSITA would consider the winding path alleged by Petitioners to be ineffective for providing airflow—in fact, a POSITA would understand

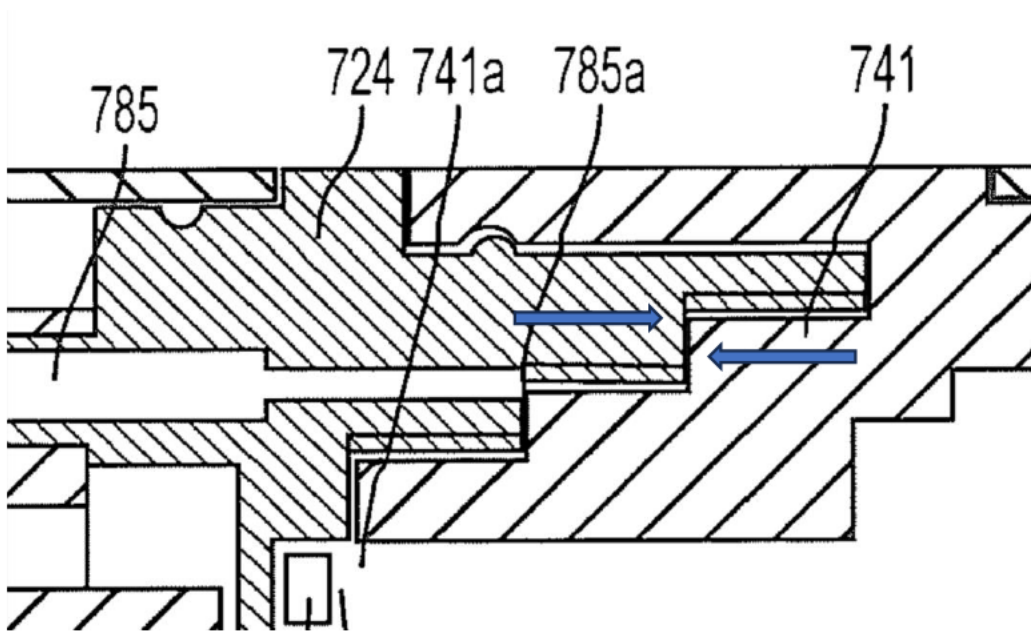
PUBLIC VERSION

that “labyrinth seals,” which use pathways such as shown in Worm, could be used to seal connections from fluids. Ex. 2001, ¶53. Labyrinth seals are just one type of mechanical seal that prevents airflow through a connection between components using nothing more than the geometry of the passageway. *Id.* Indeed, it is well-known that a right angle in a small passageway, like the numerous right angles shown in the alleged passageway in Worm, diminishes airflow and causes a corresponding drop in any transmitted pressure. *Id.* Moreover, it is well-known that airflow is a function of the size of the passageway and, even if Worm did teach a “gap,” it would be so small and minimize airflow, particularly when there is another source of airflow (the disclosed air inlet aperture) that would control the airflow in the device. *Id.*

Indeed, a POSITA would understand that the gap Petitioners allege exists between the cartridge 704 and control body 702 would be sealed from airflow during a user puff, as shown below in the modified version of Figure 7. Ex. 2001, ¶54. Specifically, a POSITA would understand that when a user inhales on the mouthpiece of the cartridge 704, the control body 702 and cartridge 704 will be pulled together to form a seal. *Id.* The resulting negative pressure event is detected by the pressure sensor 708, because it is in fluid

PUBLIC VERSION

communication with the cavity 725 through the pressure channel 785. *Id.* However, airflow through the alleged gap would be substantially limited by this sealing action. As such, a POSITA would clearly understand that airflow is not intended to pass through the alleged gap and into the cartridge 702. *Id.* Such a pathway would not be suitable for its intended purpose. *Id.*



In addition, if the gap exists as Petitioners allege, there would be variability in the size of the gap and air inlet. Ex. 2001, ¶55. As discussed below, such variability is undesirable because it would have an uncontrollable effect on user experience.

In addition, the specification makes it clear that the areas that the Petitioner claims are “a uniform gap between cartridge 704 and control body 702” is incorrect. Pet. 17. The specification describes that the electrically

PUBLIC VERSION

conductive heater terminals 138 are configured to direct current flow through the heating element and from the battery 110 when the cartridge 104 is connected to the control body. Ex. 1004, ¶38. The plug 140 engages the coupler 120 to form an electrical connection so that an electrical current can flows from the battery 110, through the coupler and plug, and to the heating element 134. *Id.* As such, portions of the electrical contacts in the battery portion (361, 362, and 363) must touch the corresponding contacts in the cartridge. Ex. 2001, ¶56.

For these reasons, Worm does not anticipate the claimed air inlet and passage.

V. GROUND 2: PETITIONERS FAIL TO ESTABLISH THAT WORM RENDERS OBVIOUS THE CHALLENGED CLAIMS

Petitioners argue in the alternative that “it would have been obvious to a POSA that the channel formed between the cartridge receptable [sic] and cartridge of Worm permits air to enter the cavity.” Pet. 50. However, as explained above in Ground 1, a POSITA would not have considered it desirable for such a channel to permit air. Ex. 2001, ¶57. Petitioners do not provide any sort of “articulated reasoning with some rational underpinning” for why a POSITA would want to modify Worm to include such an airflow

PUBLIC VERSION

channel despite its lack of disclosure. *KSR Intern. Co. v. Teleflex Inc.*, 550 U.S. 398 (2007); Ex. 2001, ¶58.

Instead, Petitioners argue that the gap in Figure 7 is “depicted as a uniform gap” and therefore would be obvious to allow airflow. Pet. 50 (quoting Ex. 1004, ¶76); Ex. 2001, ¶59. However, as explained above, patent figures are not intended to convey specific dimensions or sizes. *Hockerson-Halberstadt, Inc. v. Avia Group Int’l*, 222 F.3d 951, 956 (Fed. Cir. 2000). In addition, as explained above, a POSITA would understand that some contact between the surfaces is needed to conduct electricity and the depth of the cartridge into the housing would vary with use, including blockage when the cartridge is pulled toward the cavity. Ex. 2001, ¶60.

More importantly, a POSITA would find it undesirable to use the alleged gap for airflow because it creates an *additional* source of airflow that is difficult if not impossible to control. As explained by Dr. Collins, a POSITA at the time of the invention of the ’123 patent would understand that the airflow in an e-cigarette is the result of considerable engineering. Ex. 2001, ¶61. The size, shape, and location of air inlets and air passages affect draw resistance, which impacts, among other things, vapor production, the size of the visible vapor cloud, and nicotine delivery to a user. *Id.* These are

PUBLIC VERSION

details that must be carefully balanced so that the use of the vaporizer simulates the experience of using a cigarette. *Id.*

The inventors of the '123 patent and the JUUL Device it describes and claims recognized that draw resistance, and the airflow that contributes to it, must be tightly controlled. *See, e.g.*, Ex. 2003, 26 (“[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]”).

Others working in the e-cigarette space at the time of the '123 patent's invention similarly recognized that many factors contribute to the user experience, including the design of the aerosol formation chamber. *See* Ex. 2023 (“Thorens '379”), ¶50; Ex. 2001, ¶62.

Thus, in order to control the amount of airflow that results in an optimal user experience, it would be preferable and simpler to engineer the size of the air inlet 789 and air passage 788 expressly described in Worm for the optimal dimensions. Ex. 2001, ¶¶63-64. By contrast, the additional air inlet and passage as proposed by Petitioners are based on several factors that can vary

PUBLIC VERSION

in use, such as the shape of the electrical contacts as well as the distance the cartridge is inserted into the control body which is affected by multiple tolerance stack-ups² and by extraneous factors such as wear and tear of the protrusion/recess mechanism or the amount of inhalation force applied by the user to the cartridge moving towards the control body. Ex. 2001, ¶64. Petitioners’ alleged air inlet and passage therefore cannot be tightly engineered or controlled to ensure an optimal user experience, if air can even flow through the alleged gap in the first place. *Id.*

Petitioners also argue that “for embodiments where air inlet aperture 389/789 is not used, the only access to ambient air in Worm is the interface between the cartridge and cartridge receptacle” and “[w]ithout access to ambient air from the periphery, a vacuum would be created in the device and the device would become nonfunctional.” Pet. 51. As an initial matter, Petitioners rely on the embodiment in Figure 7 but nowhere does Worm describe the air inlet aperture 789 as optional—indeed, all of the embodiments

² As explained by Dr. Collins, tolerance stack-ups occur when manufacturing tolerances from multiple components within a single device accumulate. Ex. 2001, ¶64 n.2.

PUBLIC VERSION

Petitioners rely on (Figures 2, 5, and 7) use the air inlet aperture. Ex. 2001, ¶¶65-66. Moreover, Petitioners are incorrect that the device would be nonfunctional without airflow. Instead, such a device would be considered a “fuming” type device. Ex. 2001, ¶67. Such devices heat the liquid in an enclosed space and the liquid that is vaporized substantially expands in volume and exits through the inhalation tube where it can be inhaled. *Id.* Fuming devices do not require the user to suck air through the cartomizer, and instead, the vapor is inhaled directly with the potential for ambient air that never passes through the cartridge to be mixed with the vapor during inhalation. *Id.*

For these reasons, Worm does not render obvious the claimed air inlet and channel.

VI. GROUND 3: PETITIONERS FAIL TO ESTABLISH THAT WORM IN VIEW OF LEVITZ RENDERS OBVIOUS THE CHALLENGED CLAIMS

Petitioners argue that in view of Levitz, “a POSA would have modified Worm so that outside air enters at the interface between the battery and cartridge connection.” Pet. 56. Petitioners do not argue that it would be obvious to modify Worm to use Levitz’s airflow channel, with good reason, because Levitz does not disclose a channel “formed between an interior

PUBLIC VERSION

surface of the cartridge receptacle and an exterior surface of the cartridge.”

Ex. 2001, ¶¶68-70.

As an initial matter, Petitioners’ proposed combination would not read on the challenged claims because, as discussed above, Worm does not disclose or render obvious a channel that is “formed between an interior surface of the cartridge receptacle and an exterior surface of the cartridge” with respect to the area connected to the proposed air inlet. As discussed above, Worm makes no provision for such a channel, a POSITA would not understand such a channel to exist, and even if such a channel existed, a POSITA would understand that it would be highly restrictive to airflow or vary in size depending on usage and a POSITA would have found it undesirable to have another airflow channel beyond the one already disclosed in Worm. Ex. 2001, ¶71.

Moreover, Petitioners’ reasons for modifying Worm in view of Levitz are redundant with Worm’s actual disclosures and driven by hindsight. See *ATD Corp. v. Lydcall, Inc.*, 159 F.3d 534, 546 (Fed. Cir. 1998) (“Determination of obviousness can not be based on the hindsight combination of components selectively culled from the prior art to fit the parameters of the patented invention.”); Ex. 2001, ¶72. It is also axiomatic

PUBLIC VERSION

that obviousness cannot be sustained by combining two devices that independently operate effectively to provide redundant functionality. *Kinetic Concepts, Inc. v. Smith & Nephew, Inc.*, 668 F.3d 1342, 1369 (Fed. Cir. 2012) (“Because each device independently operates effectively, a person having ordinary skill in the art ... would have no reason to combine the features of both devices into a single device.”).

Petitioners first argue that “the placement of air inlets is a design choice.” Pet. 57. However, it is not an **arbitrary** design choice because, as explained above and by Dr. Collins, the size, shape, and location of air inlets affect draw resistance, which impacts, among other things, vapor production, the size of the visible vapor cloud, and nicotine delivery to a user. Ex. 2001, ¶73. These details must be carefully considered and controlled, and Petitioners provide no evidence that a POSITA making such careful considerations would decide to modify Worm in view of Levitz, especially to add an additional air inlet path when one already exists. *Id.* Indeed, Worm already describes an air inlet and channel within the control body that can be carefully controlled, whereas the proposed air inlet’s size will vary depending on use and wear-and-tear. Thus, a POSITA would **not** have found it desirable to make Petitioners’ modifications, and would have no reason to make such

PUBLIC VERSION

modification given Worm's express disclosure of an air inlet path. Ex. 2001, ¶74.

Petitioners further argue that a POSITA would be motivated to make the proposed modification because the additional air inlet provides “additional pathways for any vapor that backflows to exit the periphery of the connection rather than into the negative pressure space.” Pet. 59. First, Worm already solves the problem of backflow. Ex. 1004, ¶76 (“The matched configuration of the cavity 725 and the projection 741 preferably does not substantially form an air tight connection therebetween. Thus, the pressure drop in the cavity 725 is likewise communicated to the pressure channel 785 from the first end 785a to the second end 785b and thus the pressure reduction space 783. Because of the spatial arrangement of the air inlet channel 788 and the first end 785a of the pressure channel 785, however, *the airflow entry 741 of the seated projection 740 is sufficiently spaced apart from the first end of the pressure channel to prevent or reduce incidence of passage of liquid from the cartridge 704 through the base 740 and into the control body 702.*”). In other words, the inlet and channel expressly disclosed by Worm suitably addresses any potential backflow. Ex. 2001, ¶75.

PUBLIC VERSION

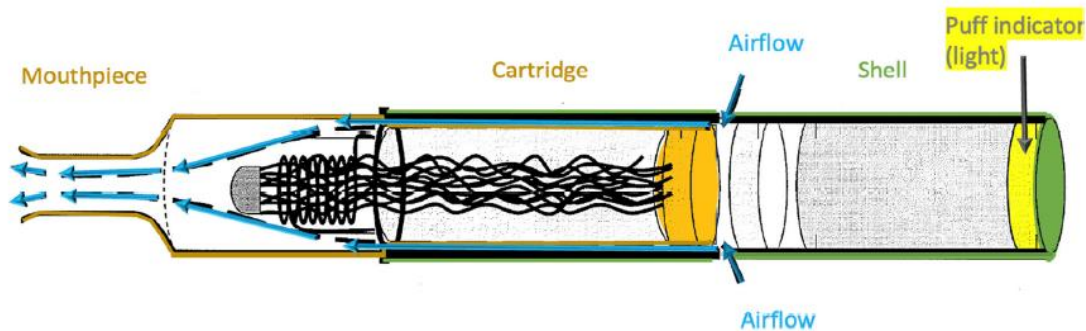
Moreover, Petitioners' proposed combination only adds an additional air inlet—it does not provide an additional pathway for backflow to exit. As discussed above, Petitioners' alleged gap is not disclosed or obvious in Worm. But even if it exists as alleged by Petitioner, it is present in Worm alone and would not provide a motivation to add an air inlet in view of Levitz. In other words, the addition of an air inlet in view of Levitz provides no benefit with respect to backflow exit. Ex. 2001, ¶76.

Petitioners finally argue that because of backflow residue along the channel, “a POSA would have been motivated to use an inlet at the interface between the battery and cartridge section because it would enable the smoker to clean the channel simply by removing the cartridge and cleaning the exposed channel.” Pet. 59-60. However, the user would already need to clean air inlet apertures 789 and channel 788 that are depicted to be much larger. Ex. 2001, ¶77. Moreover, because of the winding, perpendicular path of Petitioners' alleged gap, it is unlikely that there would be much backflow residue relative to the air inlet and passage that Worm expressly discloses. *Id.*

PUBLIC VERSION

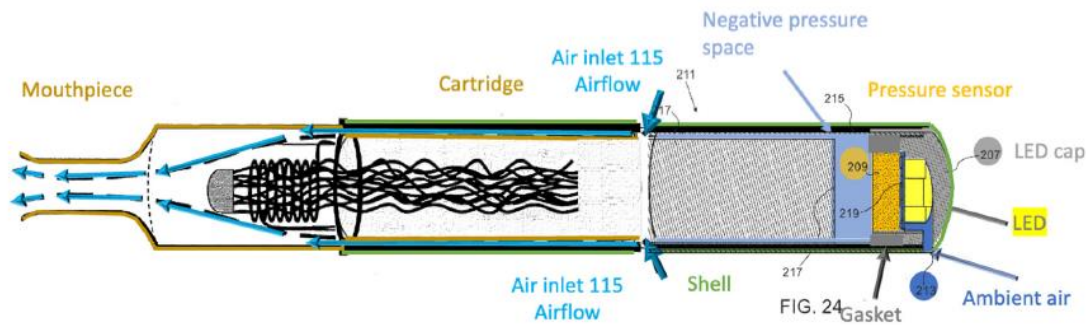
VII. GROUND 4: PETITIONERS FAIL TO ESTABLISH THAT THORENS AND WEIGENBERG RENDER OBVIOUS THE CHALLENGED CLAIMS

Petitioners assert that it would have been obvious to significantly modify the body of Thorens’s “cig-a-like” system to include Weigensberg’s pressure sensor chip assembly at the tip. Thus, Petitioners propose modifying the below Figure 3 from Thorens (annotated by Petitioners). Pet. 65.



Petitioners propose modifying the above Figure by replacing all of the components to the right of the air inlet with those from Weigensberg, as shown in the below heavily modified Figure 3 (as annotated by Petitioners). Pet. 65-66; Ex. 2001, ¶¶78-80.

PUBLIC VERSION



Modified Thorens

There are at least two significant issues with Petitioners' proposed combination. Ex. 2001, ¶81. *First*, a POSITA would not be motivated to combine the references because there are significant changes to Thorens's device which are disadvantageous and outweigh the lack of benefit from replacing Thorens's air flow sensor with a pressure sensor. *Second*, even if the references could be combined, the combination does not render obvious a gasket because Thorens and Weigensberg do not disclose a gasket—Thorens discloses a plastic LED cap.

A. A POSITA Would Not Be Motivated to Combine Thorens and Weigensberg

Petitioners' combination of Thorens and Weigensberg involves significant changes to Thorens's device that provide no benefit. In particular, Petitioners propose significant changes to the electrical contacts between the battery and the device, and in so doing, remove a circuit for controlling the

PUBLIC VERSION

device and leave exposed wiring. Ex. 2001, ¶81. Yet Petitioners do not provide any cogent motivation to essentially re-engineer the entire device beyond the addition of a pressure sensor for detecting inhalation—which is unnecessary because Thorens ***already detects inhalation*** using an airflow sensor, which it calls a “puff detection system.” See *Kinetic Concepts, Inc. v. Smith & Nephew, Inc.*, 668 F.3d 1342, 1369 (Fed. Cir. 2012) (“Because each device independently operates effectively, a person having ordinary skill in the art ... would have no reason to combine the features of both devices into a single device.”)..

Moreover, a POSITA would understand that in Thorens, heating coil 209 operates by being “in contact with the electrical contacts 113 on the shell,” which themselves are in electrical contact with battery 103 via electrical connections 111. Ex. 1016, ¶¶42, 44. Thorens also discloses a disk-shaped programmable circuitry 105 “used to manage the device operation” (labeled “control circuit” in the above) including “sens[ing] the user taking a puff” (via the puff detection system 107) and then “suppl[ying] a current pulse of a pre-determined time to the heating coil 209.” Ex. 1016, ¶46; Ex. 2001, ¶83.

Without any explanation, Petitioners’ proposed combination replaces Thorens’ “puff detection system” with a differential pressure sensor. The two

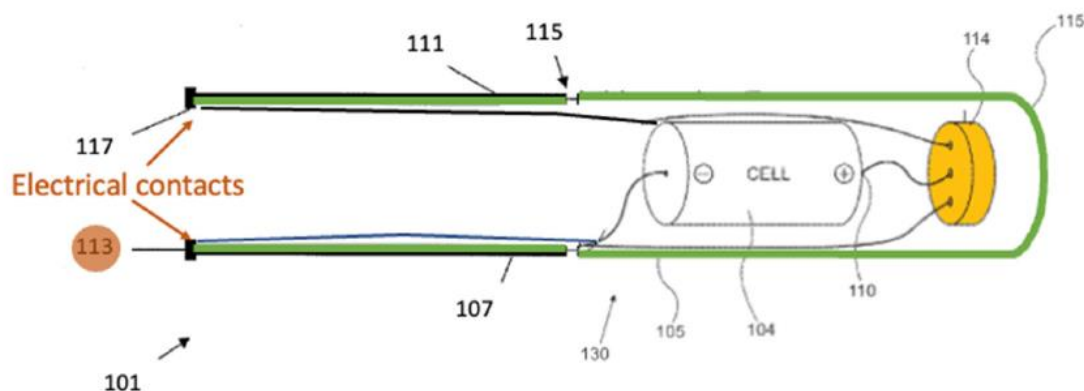
PUBLIC VERSION

are not the same. Ex. 2001, ¶84. Differential pressure sensors detect a user's draw through the reduced pressure in the device compared to ambient is an indicator of airflow, but does not measure airflow itself. *Id.* If, for example, the air inlets become clogged or blocked, a user could draw on the device and the pressure sensor would indicate to the controller that there is airflow when there is not. This could be dangerous as the device may overheat. *Id.* Also, some differential pressure sensors can be tricked by blowing into the mouthpiece increasing the pressure in the device. When the pressure later drops, it is detected as a puff. *Id.*

As discussed above, the pressure drop through a device will be very dependent on the configuration of the air pathway and requires careful design and manufacturing. Ex. 2001, ¶85. Thorens, on the other hand, discloses a “puff detection system” through which the air passes. This allows for the direct measurement of airflow. Thorens describes the puff detector may be an electro-mechanical device, a mechanical device, an optical device, an opto-mechanical device, and a micro electro mechanical systems (MEMS) based sensor. Ex. 1016, ¶15. There is therefore no reason to replace Thorens's sensor with Weigensberg's differential pressure sensor. Ex. 2001, ¶86.

PUBLIC VERSION

But in order to incorporate Weigensberg’s pressure sensor, Petitioners propose major design changes to Thorens’s device, eliminating each of the above components and modifying the Thorens device to substitute in components from Weigensberg. Ex. 2001, ¶87. Where Thorens uses electrical contacts at the distal end of the shell to form an electrical connection between battery and heating coil, Petitioners instead propose “[e]xtending the electrical lines from Weigensberg’s sensor chip assembly 115 to the electrical contacts 113,” as shown below in Petitioners’ modified figure. Pet. 69. This modification results in exposed wiring where the cartridge is inserted, as shown in Petitioners’ own images of the proposed combination, which a POSITA would find highly undesirable due to the likelihood that repeated insertion would cause damage to the wiring. Ex. 2001, ¶87.



PUBLIC VERSION

This modification also exposes the leads of the pressure sensor on the inside of the device, which is inferior to the electrically connected disks from Thorens. Ex. 2001, ¶88. In the proposed combination, there are loose wires that have to be displaced by the cartridge when inserted. A POSITA would never make this design change and would consider it a poor design. Ex. 2001, ¶89.

Petitioners' proposed modification also removes Thorens's programmable circuitry 105, which is "used to manage the device operation," such as the control of the heating coil upon detecting a puff. Ex. 1016, ¶46. Petitioners do not propose any suitable replacement. A POSITA would understand that removing said circuitry would leave the device inoperable for its intended purpose. *See Adidas AG v. Nike, Inc.*, 963 F.3d 1355, 1359 (Fed. Cir. 2020) (affirming lack of motivation to combine); Ex. 2001, ¶90.

These significant and undesirable modifications outweigh Petitioners' alleged motivations to incorporate a differential pressure sensor that is unnecessary in view of Thorens's airflow sensor for detecting a puff. *See* Ex. 1016, ¶¶15, 34; Ex. 2001, ¶91. In particular, Thorens discloses that its device "comprises a sensor to detect air flow indicative of a user taking a puff," which will then "provide an electric current pulse to the at least one heating element."

PUBLIC VERSION

Id., ¶15. At bottom, there is no benefit to replacing Thorens’s airflow sensor with a pressure sensor that provides the same result—and all of Petitioners’ changes would result in a fundamental change in Thorens’s principle of operation. See *In re Ratti*, 270 F.2d 810, 813 (C.C.P.A. 1959).

Petitioners’ alleged motivations for these changes are unavailing. Ex. 2001, ¶92.

First, Petitioners argue that “a differential pressure sensor is simply a design choice that was conventionally used in e-cigarettes.” Pet. 68. Yet as shown above, adding Weigensberg’s pressure sensor to Thorens requires significant, undesirable changes that are more than just a design choice. A POSITA would not make such significant changes as a mere “design choice” in view of Thorens’s already-effective airflow sensor. Ex. 2001, ¶93.

Second, Petitioners argue that “a differential pressure sensor open to ambient air can better accommodate external pressure changes,” such as “the device would not accidentally activate at high altitude due to the decrease in pressure.” Pet. 68. However, this alleged advantage is merely an advantage over non-differential pressure sensors. Thorens uses an airflow sensor which does not have this high altitude issue. Ex. 2001, ¶94.

PUBLIC VERSION

Third, Petitioners argue that “because Weigensberg’s sensor outputs pressure values, that can be used to add features to the device,” such as “changing heater parameters based on airflow rate.” Pet. 68. As an initial matter, it would likely be difficult to implement such features given that the proposed combination removes Thorens’s control circuit. Ex. 2001, ¶95. Moreover, Thorens’s sensor detects “air flow indicative of a user taking a puff,” and therefore can already detect different airflow rates. *Id.*; Ex. 1016, ¶34.

Finally, Petitioners argue that in the combination “space where the puff sensor was located is freed up” which “permits, for example, a larger battery.” Pet. 68-69. The opposite is true. The proposed combination adds at least a pressure sensor to the tip of the e-cigarette, leaving less space for a larger battery. Ex. 2001, ¶96.

To summarize, Petitioners’ combination replaces a puff detector which senses airflow for a differential pressure which only provides an indication of potential airflow, re-engineers the electrical wiring of Thorens’s device, removes its control circuit, and leaves leads and wiring exposed, including in the space where a cartridge is repeatedly inserted. These changes are highly disadvantageous and provide no benefit.

PUBLIC VERSION

B. Petitioners’ combination does not render obvious “a gasket around the pressure sensor”

The independent claims require a “gasket around the pressure sensor.” Weigensberg does not disclose a gasket around its pressure sensor. Ex. 2001, ¶97. Instead, Petitioners point to a “plastic LED cap 207,” which Petitioners contend “acts as a gasket that isolates the ambient air pressure path from the device path to allow the pressure sensor to detect differences from ambient air.” Pet. 81 (citing Ex. 1006, ¶107).

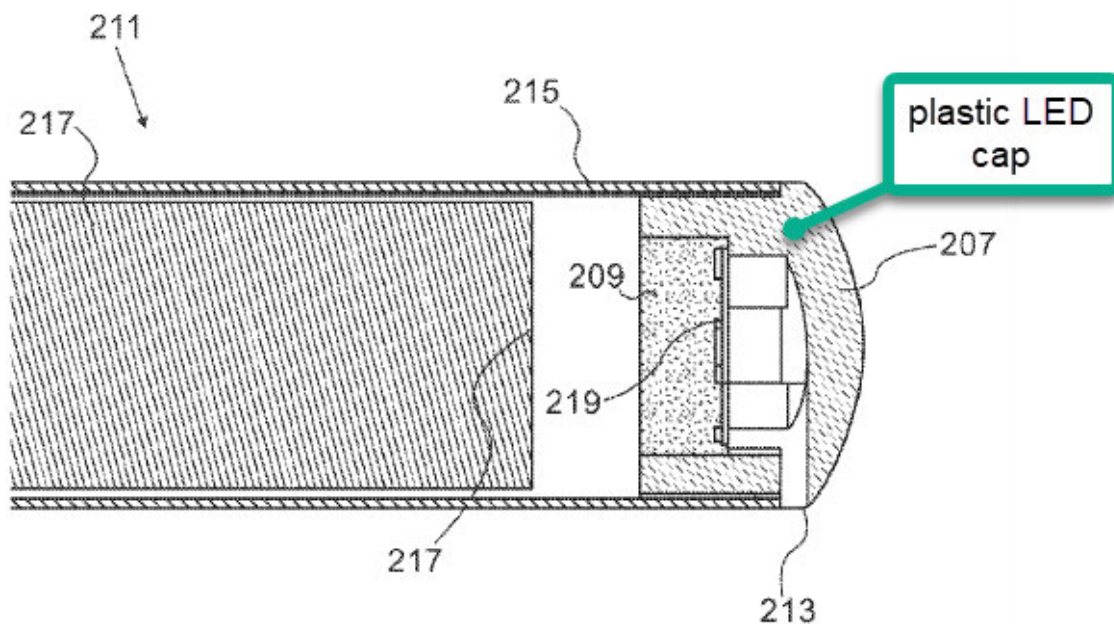


FIG. 24

However, nowhere does Weigensberg disclose that the plastic LED cap is a gasket. It is, as its name indicates, a cap over the LED. A plastic LED cap is not a gasket. Ex. 2001, ¶98. A POSITA would understand a gasket to

PUBLIC VERSION

be some flexible material surrounding the sensor that can form a seal between the ambient pressure side and the sealed airflow path. *Id.* There is no disclosure in Weigensberg that the plastic LED cap provides such a seal, and a POSITA would understand that plastic is not a suitable material for a gasket because it does not provide an airtight seal that a gasket provides. *Id.*

Petitioners argue that “a POSA would have recognized that, consistent with common practice, Weigensberg’s pressure sensor would have a surrounding gasket to isolate the ambient side of the pressure sensor from the other side that senses the negative pressure.” Pet. 82. However, Weigensberg’s depictions do not have any space for a gasket. Ex. 2001, ¶99. Nor would a gasket be needed since the plastic LED cap, while not a perfect seal, provides enough separation for the differential pressure sensor to work.

VIII. GROUNDS 5-8 FAIL FOR THE SAME REASONS

In Grounds 5 through 8, Petitioners propose combining Grounds 1 through 4 with Lamb as an alternative argument for the claimed “pressure sensor configured to put sensor readings” and “gasket around the pressure sensor...to seal the device air path from the sealed air flow path,” as well as several dependent claims reciting limitations with respect to the pressure sensor. Since these grounds rely on Grounds 1-4 for the claimed air flow path,

PUBLIC VERSION

air inlet and channel, they fail for the same reasons discussed above. Ex. 2001, ¶100.

For Ground 8, Petitioners argue that Thorens and Weigensberg in further view of Lamb renders obvious “a gasket around the pressure sensor.” Pet. 95-97. However, Petitioners do not contend that Lamb discloses a gasket. Instead, Petitioners argue that “Lamb incorporates by reference Newton766,” and Newton766 has a sealing member around its pressure sensor. Pet. 96 (citing Ex. 1005, ¶41).

As an initial matter, Lamb does not incorporate Newton766’s sealing member by reference—instead, Lamb clearly limits its incorporation to Newton766’s “LED components.” Ex. 2001, ¶101; Ex. 1005, ¶41; see *Advanced Display Systems, Inc. v. Kent State University*, 212 F.3d 1272, 1282 (Fed. Cir. 2000) (“To incorporate material by reference, the host document must identify with ***detailed particularity what specific material it incorporates ...***”).

Moreover, Petitioners do not provide any motivation to combine Thorens and Weigensberg with Newton766’s gasket. Ex. 2001, ¶102. In the motivation to combine section, neither Newton766 nor gasket is ever

PUBLIC VERSION

mentioned. Pet. 90-94. Instead, the section is directed to incorporating Lamb, which does not teach a gasket. Ex. 2001, ¶102.

IX. OBJECTIVE EVIDENCE FURTHER DEMONSTRATES THAT THE '123 PATENT WAS NOT OBVIOUS

Objective indicia of non-obviousness “may often be the most probative and cogent evidence in the record.” *Medtronic, Inc. v. Teleflex Innovations Sarl*, 70 F.4th 1331, 1342 (Fed. Cir. 2023). In considering such evidence, the Board should conduct a “a reasoned, collective weighing of its evidence of secondary considerations,” and not rely on “overly vague and ambiguous” “assignments of weight to different considerations.” *Volvo Penta of the Americas v. Brunswick Corp.*, 81 F.4th 1202, 1213-16 (Fed. Cir. 2023). Objective evidence includes “(1) commercial success, (2) copying, (3) industry praise, (4) skepticism, (5) long-felt but unsolved need, and (6) failure of others.” *Id.*, 81 F.4th at 1212.

As shown below, there is strong and indisputable objective evidence of non-obviousness. Ex. 2001, ¶¶103-04. For nearly a decade, Patent Owner JLI has marketed and sold electronic cigarette devices under the JUUL brand. These products comprise a JUUL Device and various JUULpod (a removable cartridge) products (the “JUUL System”).

PUBLIC VERSION

After its introduction in 2015, the JUUL System met the long-felt need for a nicotine alternative to conventional combustion cigarettes. The JUUL System unexpectedly met this need by declining to use cigarette iconography and instead focusing on modularity and a system that would provide the best user experience. As a result, the JUUL System received significant industry praise and commercial success, raising its market share to over 70% within a few years. The success of the JUUL System also led to copying by competitors, including by Petitioners and Petitioners’ parent company and real party-in-interest, Altria Group, Inc (“Altria”) (f/k/a Philip Morris).

A. JLI’s products are coextensive with the claimed invention and thus a strong nexus exists between the invention and the objective evidence

In evaluating the nexus requirement for secondary considerations, there is a “presum[ption] that such a nexus applies for objective indicia when the patentee shows that the asserted objective evidence is tied to a specific product and that product embodies the claimed features, and is coextensive with them.” *Polaris Industries, Inc. v. Arctic Cat, Inc.*, 882 F.3d 1066, 1072 (Fed. Cir. 2018). The nexus analysis looks at the claims as a whole and “proof of nexus is not limited to only when objective evidence is tied to the supposedly

PUBLIC VERSION

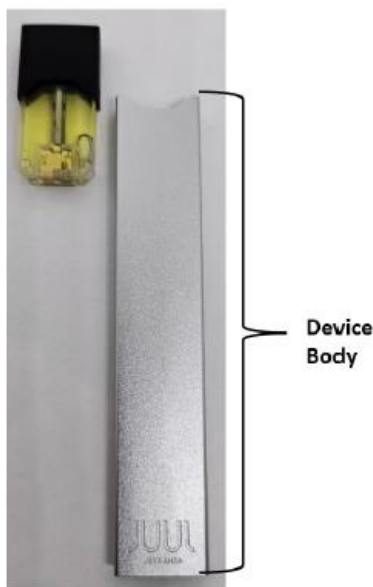
new features.” *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1331 (Fed. Cir. 2016).

There is a strong nexus here because the JUUL System is coextensive with at least challenged claims 14 and 27 of the ’123 patent. Ex. 2001, ¶¶105-06. The claimed invention is not merely a subcomponent of the products sold, but comprises a removable cartridge and a body that receives the cartridge.

As shown below, the JUUL System practices every limitation of at least claim 14 of the ’123 patent.

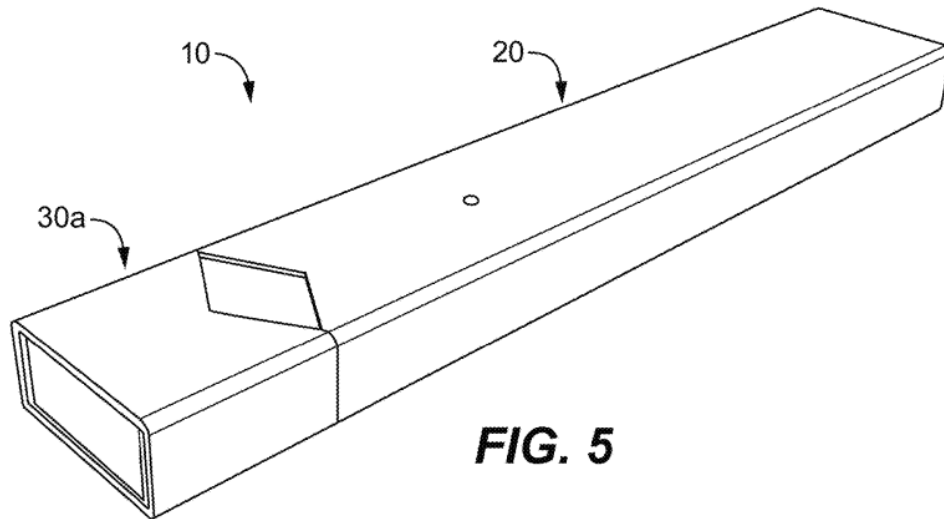
1. 14[pre]: A vaporizer device body comprising:

As shown in the photograph below of the JUUL System, the JUUL System comprises a vaporizer device body. Ex. 2007; Ex. 2001, ¶107.



PUBLIC VERSION

This apparatus is consistent with the apparatuses described in the '123 patent and depicted in its figures. *See, e.g.*, Fig. 5; Ex. 2001, ¶108.

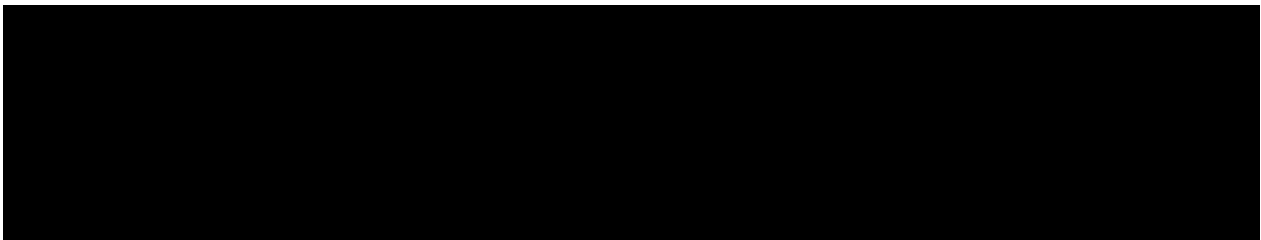


2. **14[a]: a cartridge receptacle configured to insertably receive a cartridge containing a vaporizable material;**

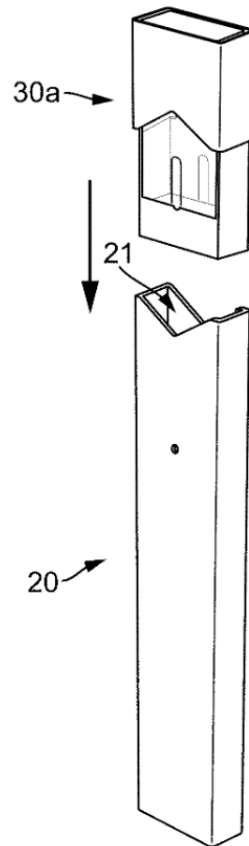
As shown in the below photo, the JUUL System comprises a JUUL Device that has a cartridge receptacle configured to insertably receive a cartridge containing a vaporizable material (specifically a JUULpod). Ex. 2007; Ex. 2001, ¶109.

PUBLIC VERSION

JLI documentation states that the cartridge contains a vaporizable material. Ex. 2003, 9; Ex. 2001, ¶110.

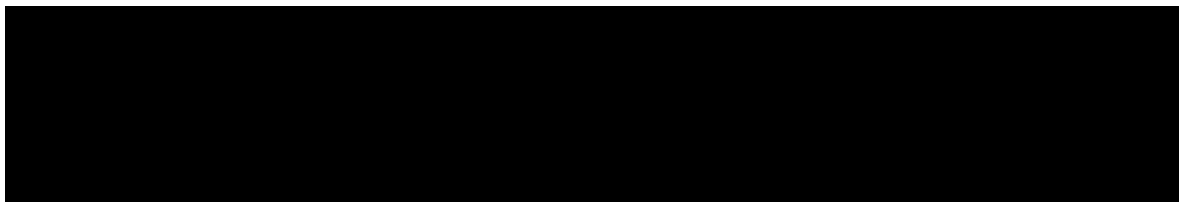


The JUULpod cartridge and JUUL Device's receptacle is consistent with the cartridges and receptacles described in the '123 patent and depicted in its figures. *See, e.g.*, Fig. 12; Ex. 2001, ¶111.

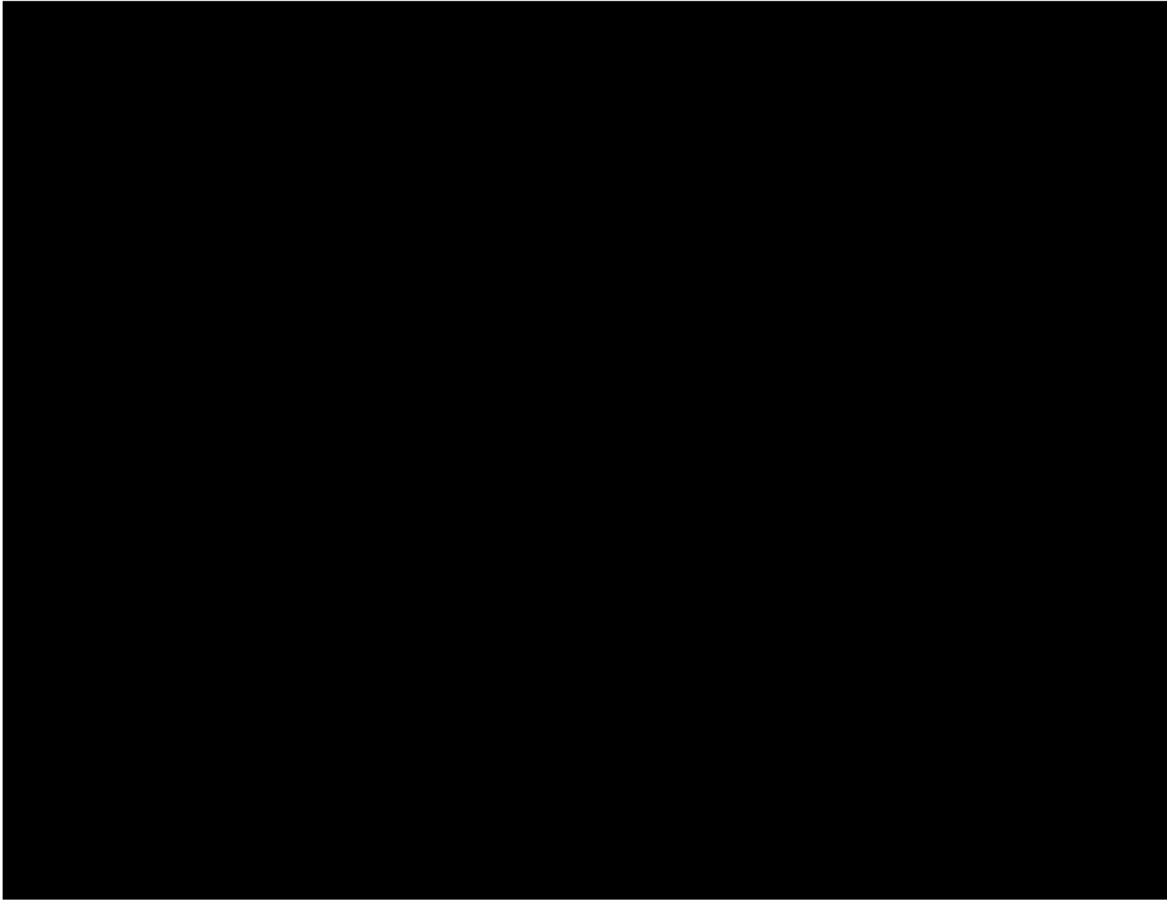
PUBLIC VERSION**FIG. 12**

3. 14[b]: a pressure sensor configured to output sensor readings

JLI documentation describes that the JUUL System has a pressure sensor configured to output sensor readings. Ex. 2003, 11; Ex. 2001, ¶112.

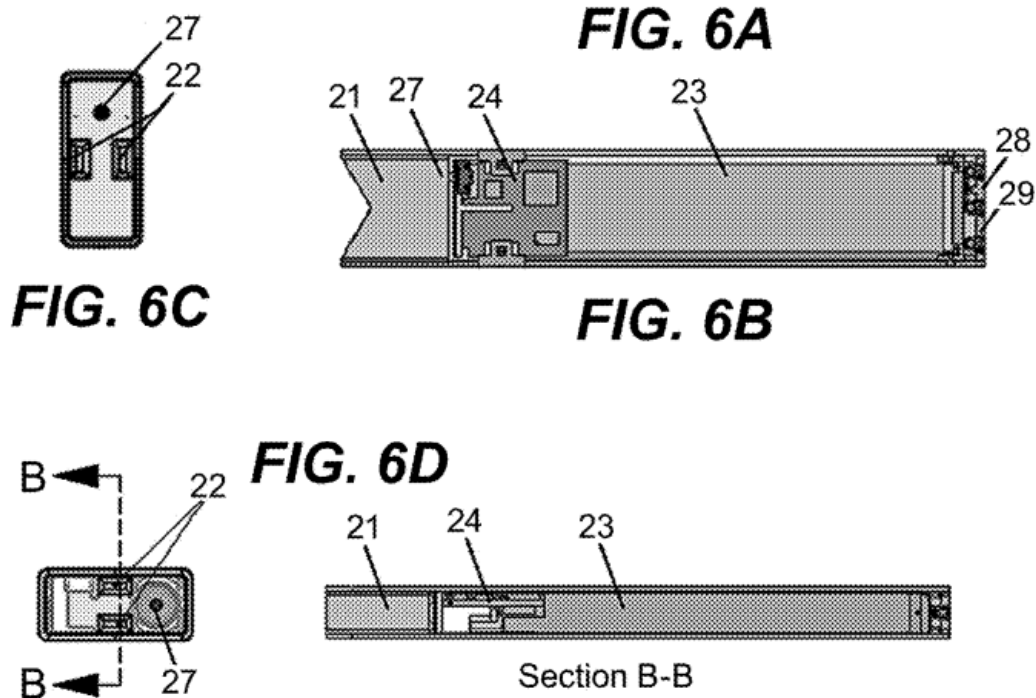


The below diagram from the same document also shows a pressure sensor. *Id.*, 13; Ex. 2001, ¶113.

PUBLIC VERSION

The pressure sensor of the JUUL System is consistent with the pressure sensor described in the '123 patent and depicted in its figures. *See, e.g.*, Fig. 6B, 6C, 6D (element 27); Ex. 2001, ¶114.

PUBLIC VERSION



4. 14[c] wherein a first side of the pressure sensor is exposed to a sealed air flow path and a second side of the pressure sensor is exposed to a device air path open to ambient pressure,

The below annotated photographs of the JUUL System show that pressure sensor in the JUUL System has a first side exposed to a sealed air flow path and a second side exposed to a device air path open to ambient pressure. This is a “sealed” airflow path because the air in this airflow path is sealed by a gasket from ambient pressure. Ex. 2045, Ex. 2046, Ex. 2048, Ex. 2049; Ex. 2001, ¶115.

PUBLIC VERSION



JLI documentation states that inhalation is detected [REDACTED]

[REDACTED]

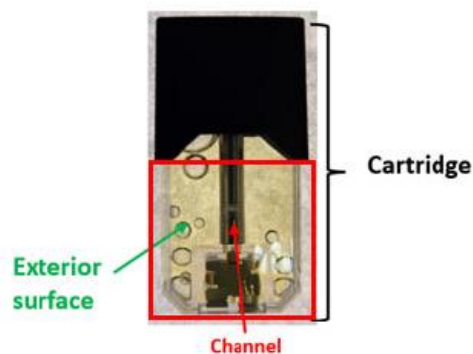
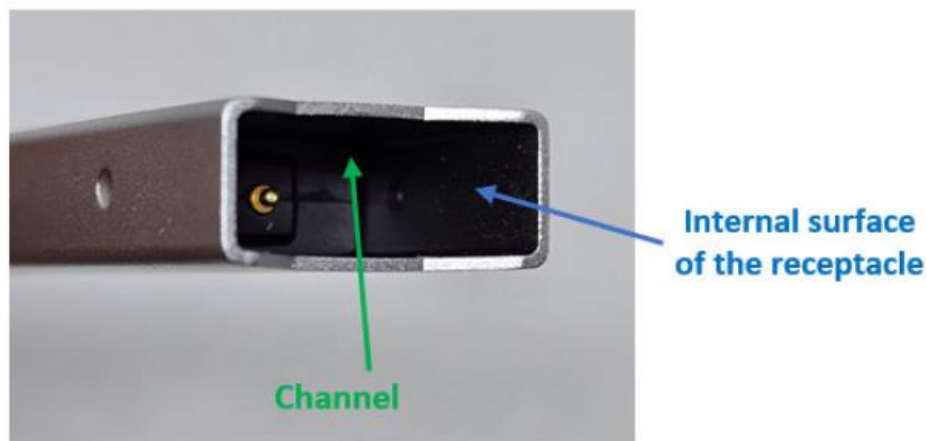
[REDACTED] Ex. 2003, 11; Ex. 2001, ¶116.

The ambient and negative pressure sides of the JUUL Systems pressure sensor are consistent with the ambient and negative pressure sides of a pressure sensor in the '123 patent. *See, e.g.*, Ex. 1001, 4:38-43; Ex. 2001, ¶117.

PUBLIC VERSION

5. **14[d]: the sealed air flow path comprising a channel formed between an interior surface of the cartridge receptacle and an exterior surface of the cartridge,**

In the JUUL System, air enters via an air inlet at the interface between the cartridge and the receptacle, on the sides of the device. It then flows downward, between the cartridge and the receptacle, to the base of the inserted cartridge, and up into the heating chamber. This channel is depicted in the below photographs. Ex. 2008, Ex. 2004; Ex. 2001, ¶118.



PUBLIC VERSION

The JUUL System's channel is consistent with the channel described and depicted in the '123 patent. *See, e.g.*, Fig. 25; Ex. 2001, ¶119.

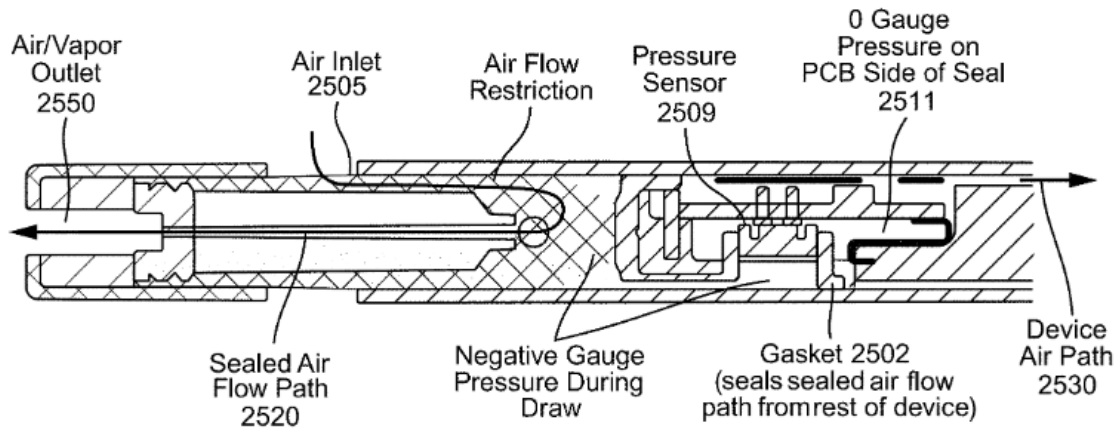
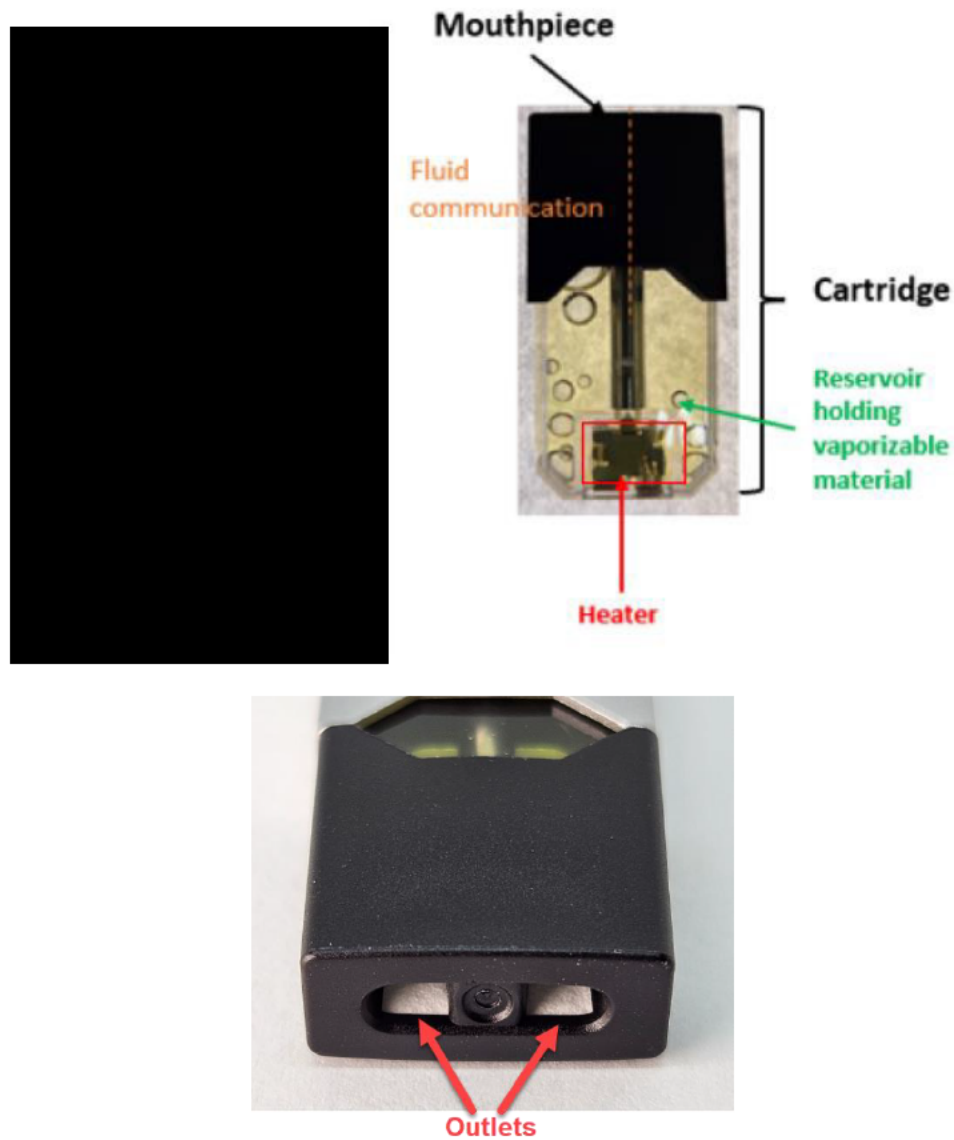


FIG. 25

6. **14[e]: the sealed air flow path passing from an air inlet, through the channel and to a heater and an outlet of a mouthpiece within the cartridge; and**

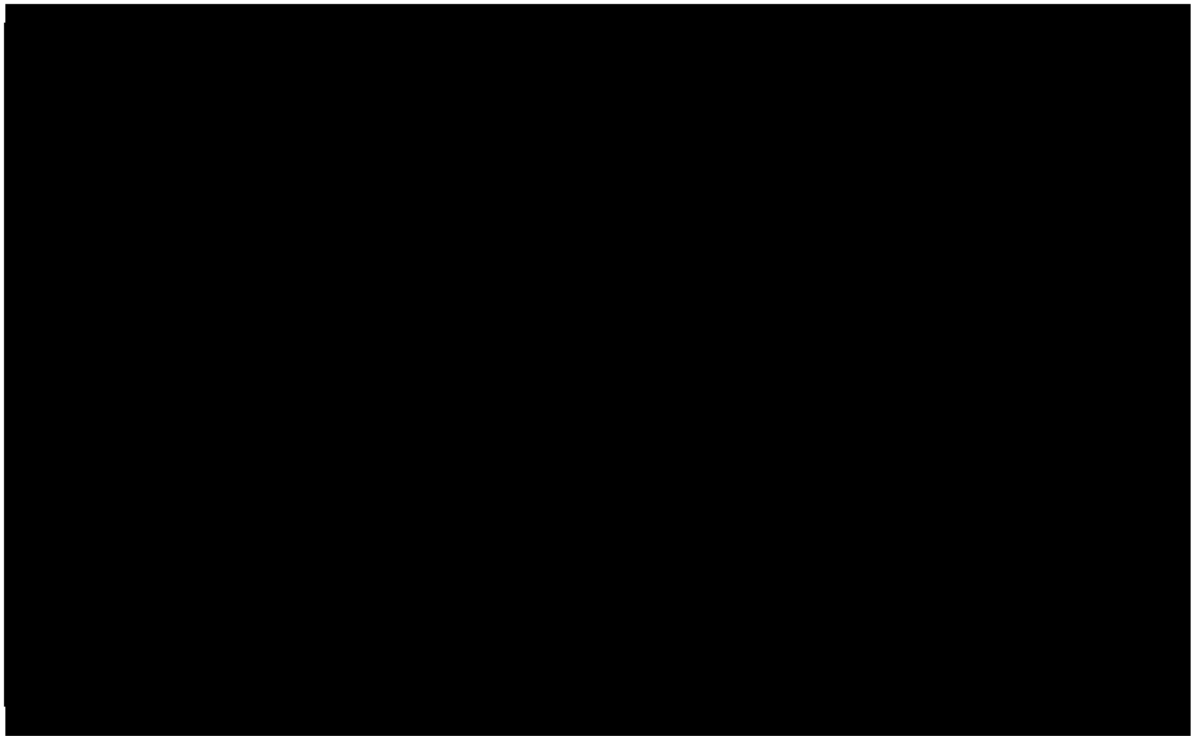
In the JUUL System, air enters at the interface between the cartridge and the receptacle, on the sides of the device. It then flows downward, between the cartridge and the receptacle, to the base of the inserted cartridge, and up into the heating chamber. The air path continues to outlets of a mouthpiece within the cartridge. This is shown in the below photographs. Ex. 2003, 9; Ex. 2004; Ex. 2050; Ex. 2001, ¶120.

PUBLIC VERSION



The below figure from JLI documentation also depicts that the air flow path of the JUUL system passes through a heater and out of outlets of a mouthpiece within the cartridge. Ex. 2003, 26; Ex. 2001, ¶121.

PUBLIC VERSION



The JUUL Device has a sealed air flow path consistent with the air flow paths described in the '123 patent and depicted in its figures. *See, e.g.*, Fig. 25; Ex. 2001, ¶122.

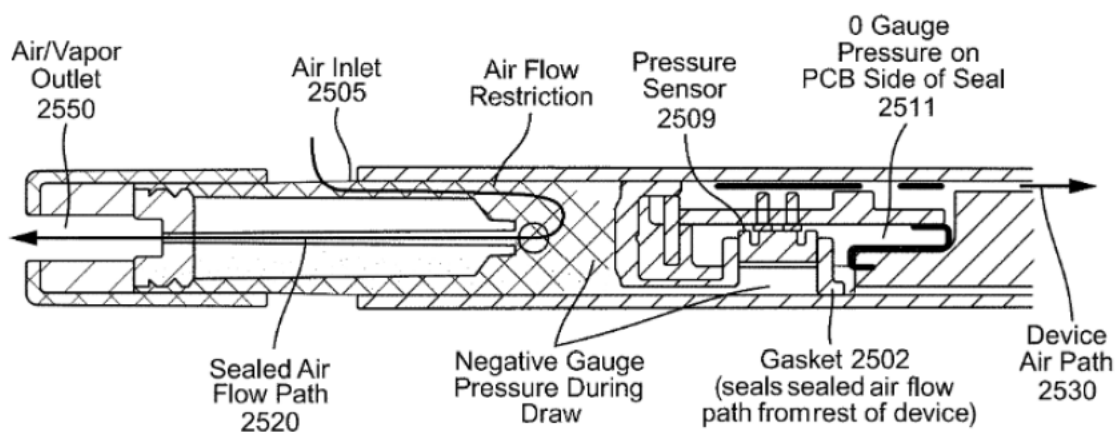


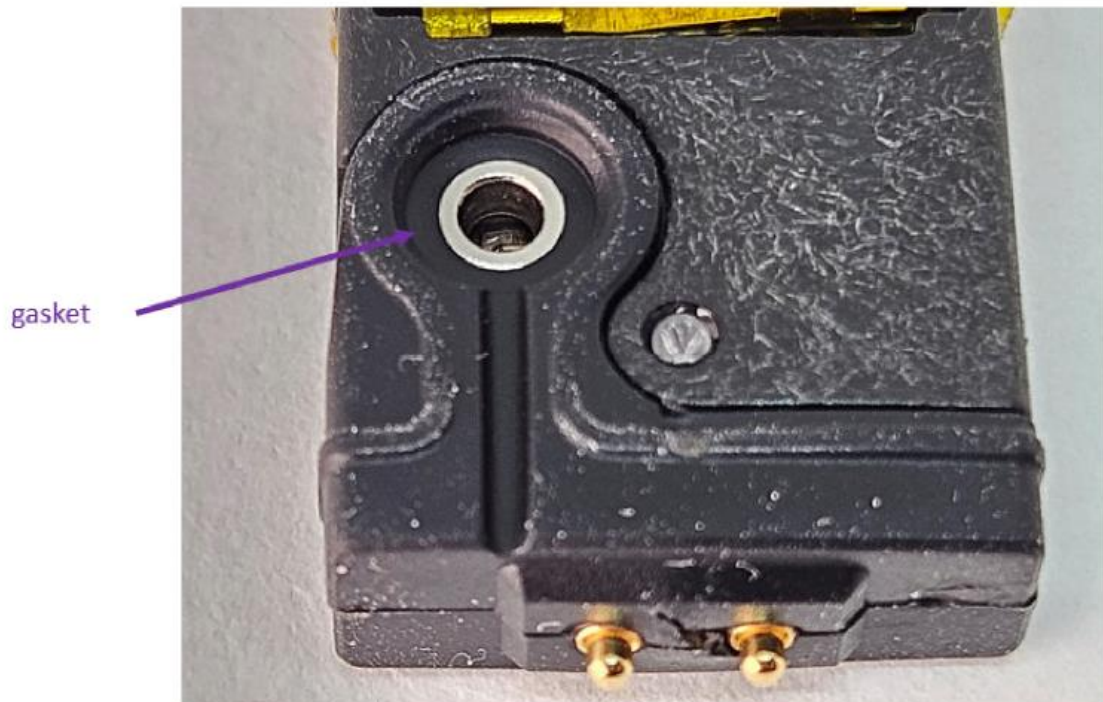
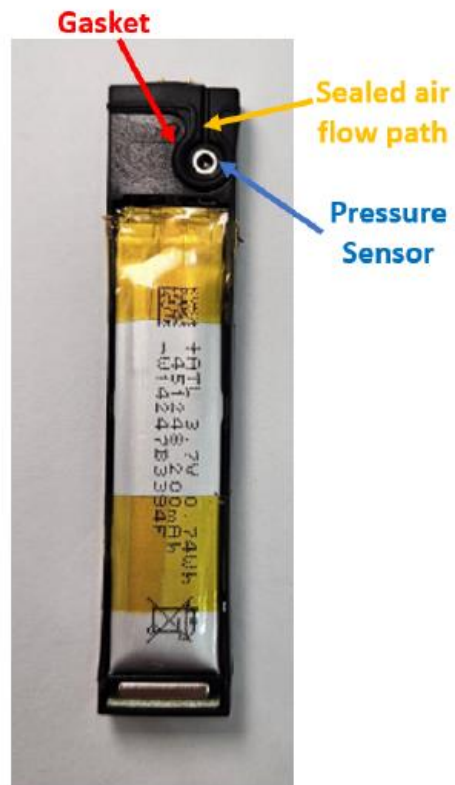
FIG. 25

PUBLIC VERSION

7. **14[f]: a gasket around the pressure sensor, the gasket configured to seal the device air path from the sealed air flow path.**

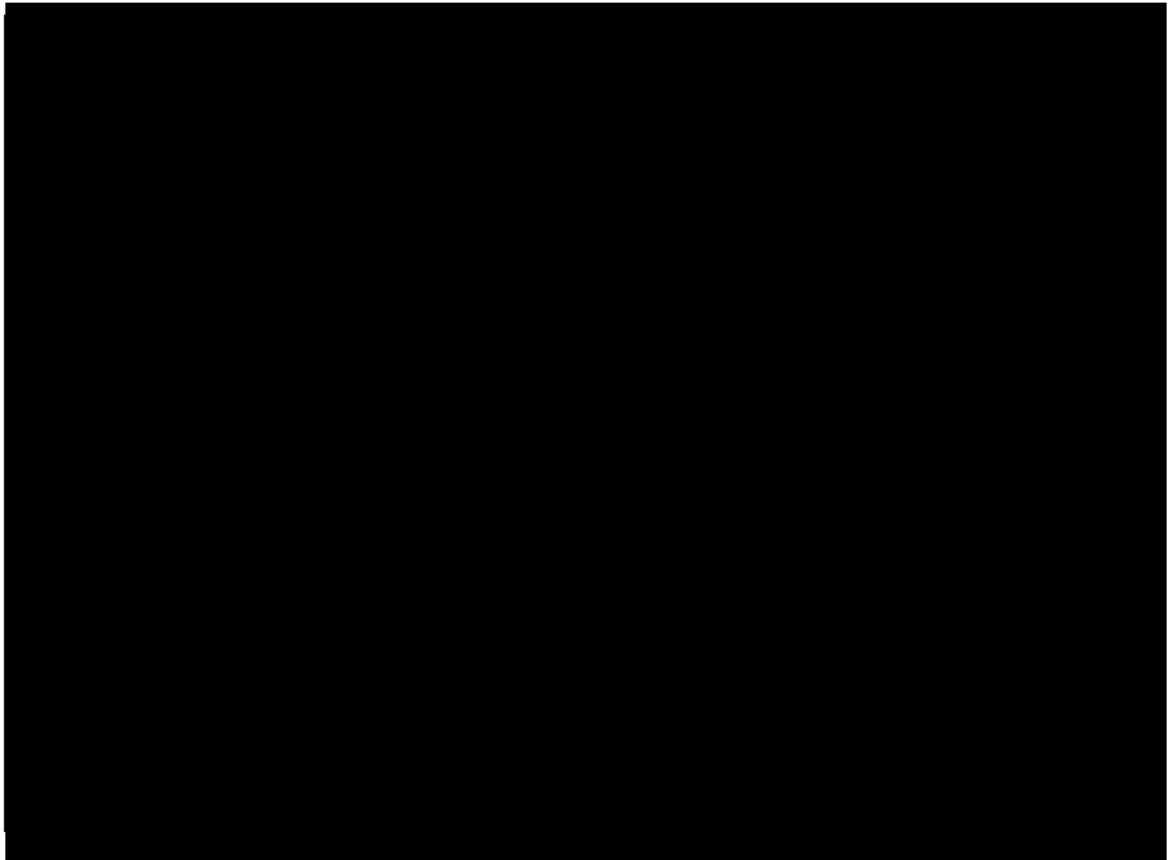
In the JUUL System, the gasket surrounds the perimeter of the pressure sensor, and is compressed between the enclosure and skeleton of the JUUL Device, isolating the sealed airpath pressure readings from the sensor readings of ambient pressure. The below photographs depict the gasket. Ex. 2045; Ex. 2051; Ex. 2001, ¶123.

PUBLIC VERSION

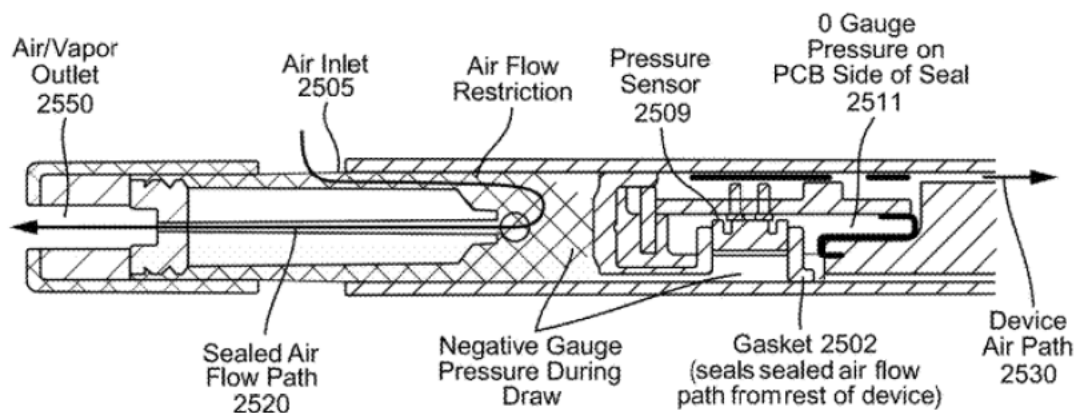


PUBLIC VERSION

JLI documentation also identifies the gasket as part of the JUUL System. Ex. 2003, 13; Ex. 2001, ¶124.



The JUUL System's gasket is consistent with the gasket described and depicted in the '123 patent. *See, e.g.*, Fig. 25; Ex. 2001, ¶125.



PUBLIC VERSION**B. Long-felt Need**

The JUUL System met the long-felt need for a satisfying nicotine delivery product that did not have the unhealthy adverse health effects of smoking combustible cigarettes. Ex. 2001, ¶126.

Before the JUUL System was first introduced in 2015, smoking tobacco cigarettes had long been known to have significant health risks. Ex. 2001, ¶127. Both federal and state governments had for decades made it a priority to decrease smoking through regulations, taxes, and informational campaigns about the dangers of smoking. *Id.*

Thus, before 2015, it was known that tobacco smoke kills half of its users, and more than eight million people die from smoke-related diseases worldwide each year. Ex. 2009; Ex. 2010; Ex. 2001, ¶128. It was also known that smoke from burning tobacco contains toxic chemical compounds that are directly and primarily responsible for the illness and death caused by cigarettes. Ex. 2011, 3; Ex. 2012, 3. Although nicotine is addictive, an FDA commissioner has recognized that nicotine itself does not directly cause the disease associated with smoking cigarettes. Ex. 2013, 2. Smoking has also caused a significant increase in national healthcare costs. Ex. 2014; Ex. 2015 (CDC estimate of \$240 billion increase in health care costs from smoking).

PUBLIC VERSION

Despite these known adverse health effects, many smokers have struggled to quit smoking because of the addictive nature of nicotine. Ex. 2001, ¶129. About 70% of adult smokers report that they desire to give up smoking. Ex. 2016. Yet the average smoker attempts to quit at least 30 times before successfully foregoing smoking for at least a year. Ex. 2017. Moreover, a 2007 study concluded that, at the time, smoking cessation failed over 90% of the time without some form of support. Ex. 2018.

In light of the above, companies have long tried to design alternative mechanisms for delivering nicotine to help users quit combustible cigarettes. Ex. 2001, ¶130. For example, in the 1980s, Philip Morris and R.J. Reynolds invested billions in developing “heat-not-burn” cigarettes that deliver nicotine from tobacco without burning it. Ex. 2019, 3-4.

Some companies developed early electronic nicotine vaporizer products that resembled combustible cigarettes, often referred to as “cig-a-likes.” Ex. 2001, ¶131. These early Electronic Nicotine Delivery Systems (“ENDS”) products were often white and cylindrical and approximately the same size as a cigarette in order to mimic the shape, look, and feel of a cigarette. Ex. 2020. However, despite the long-time availability of these early

PUBLIC VERSION

ENDS products before 2015, widespread consumer adoption did not occur before the JUUL System. Ex. 2021, 1; Ex. 2022.

For example, in 2013, Altria (formerly Philip Morris and currently Petitioners’ parent company and RPI to this proceeding) sold through its subsidiary NuMark a cig-a-like product called MarkTen—but Altria did not consider the product to be a success because it “could [not] provide the satisfaction necessary to convert smokers.” Ex. 2024, ¶613; Ex. 2001, ¶132.

On the other hand, JLI took a different approach with its JUUL System, abandoning traditional cigarette iconography altogether, in particular the cylindrical shape, outward-facing, flame-simulating LED, and a screw-in cartridge. Ex. 2001, ¶133. The JUUL System’s inventive design provided the user with a fundamentally different user experience, including with respect to vapor production and nicotine delivery that satisfied smokers’ cravings and that were enabled through practice of the ’123 patent. Ex. 2025, 39:8-41:5

([REDACTED]

[REDACTED]); Ex. 2026, 25:6-30:8 ([REDACTED]

[REDACTED]

[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]

[REDACTED]

PUBLIC VERSION

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]); *id.*, 33:24-35:6 ([REDACTED])

[REDACTED]

[REDACTED]); *id.*, 116:15-117:14. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Ex. 2025, 39:8-41:5, 65:9-66:19, 81:22-82:18, 84:8-85:4, 87:21-88:2.

The industry recognized that the JUUL System products were unique and abandoned the industry norms of emulating the iconography of traditional cigarettes. Ex. 2019, 3; Ex. 2027. This approach was regarded as technological, elegant, and sophisticated, while also providing satisfactory vapor production and nicotine delivery in a small form factor—all of which were enabled through practice of the '123 patent. Ex. 2001, ¶134. Within a few years of the JUUL System launch, JLI became recognized as a leader in the ENDS device market. Ex. 2028, 1, 4; Ex. 2029; Ex. 2030.

PUBLIC VERSION

Thus, the JUUL System met the long-felt need for nicotine delivery systems alternatives to combustible cigarettes. Ex. 2001, ¶135.

C. Unexpected Results

The JUUL System achieved the unexpected result of a reliable, user-satisfying ENDS system, while departing from industry design norms, providing sufficient vapor production and nicotine delivery, and using a relatively small form factor. Ex. 2001, ¶136. For example, providing users with a reliable device that also allowed users to view the current liquid level while the pod was inserted in the vaporizer was unexpected in view of the concern about light degradation of the liquid nicotine formulation. *Id.* Providing adequate airflow for satisfying vapor production and accurate pressure sensing to avoid accidental triggering of the device were also unexpected, as was providing a pod-based device with a liquid tank as opposed to prior devices that stored liquid in the wick or other sponge-like absorbent material. *Id.*

And for example, designing a reliable, user-satisfying ENDS system that could be manufactured in a cost-efficient manner was also unexpected. See Ex. 2025, 39:8-41:5 ([REDACTED]); Ex. 2026, 25:6-30:8 [REDACTED]

PUBLIC VERSION

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]); *see also id.*, 137:23-143 ([REDACTED])

[REDACTED]

[REDACTED]

[REDACTED]); *id.*, 33:24-35:6 ([REDACTED])

[REDACTED]

[REDACTED]); *id.*, 116:15-117:14; Ex. 2001, ¶137.

RPI Altria also made considerable investments in the e-cigarette space before it invested in JUUL. Ex. 2001, ¶138. As Altria itself acknowledged, it “really didn’t have success with [its] internally developed products,” despite all the effort “put ... into engineering reduced-risk products.” Ex. 2024, ¶¶144-45. Altria’s failed products included the De-Nic, Accord, SCOR, Marlboro Snus, Marlboro Moist Smokeless Tobacco, MarkTen King Size and MarkTen XL. *Id.*, ¶¶146-202.

PUBLIC VERSION**D. Industry Praise**

The JUUL System received widespread recognition from its customers and others in the industry. Ex. 2001, ¶139. In the years following its release, the JUUL System became the leading alternative for adult smokers, which analysts called a “runaway success.” See Ex. 2029; Ex. 2031; Ex. 2032.

RPI Altria has also praised the JUUL System as revolutionary and fueled by a strong innovation pipeline. Ex. 2001, ¶140. Altria has described the JUUL System as “an innovative breakthrough.” Ex. 2024, ¶¶213-214. It has acknowledged that while “most of the major players in the e-vapor industry acquired their products, [JUUL] ‘is one of the few companies that is responsible for the design and manufacturing of its own products.’” *Id.*, ¶214. Altria acknowledges that JUUL was “really the first pod product in the marketplace.” *Id.* It has said that “within the context of the context of the classic three-part structure, JUUL offered a number of signature features that resonated with adult consumers, including ‘the unique form-factor body, the liquid-level viewing window, the reversible pod with locking gaps, the fresh air flow design, and the simple user operation.’” *Id.*, ¶219. Altria has acknowledged that “[p]rior to the emergence of Juul, most e-cigarettes were cigalikes” whereas JUUL had a “‘simple, intuitive, [and] easy-to-use’ product

PUBLIC VERSION

design” which “contributed to JUUL’s success.” *Id.*, ¶¶220-22; *see also*, Ex. 2026, 25:6-30:8, 35:7-35:24, 63:3-12, 68:23-69:10, 121:18-122:17.

E. Commercial Success

The JUUL System has enjoyed significant commercial success since its release in 2015. Ex. 2001, ¶141. For example, a Wells Fargo analysis of Nielsen data reported that JLI’s effective annual dollar sales increased 783% in the 52-week period ending June 16, 2018, reaching \$942.6 million. Ex. 2028, 1. This came from an 882% increase in unit sales over the same period. *Id.* Other analysis made similar findings. *See* Ex. 2032; Ex. 2033, 3 (“JUUL’s 4-week sales growth grew over 800% in 2017, with under \$5M in sales during the 4 weeks ending mid-February 2017 and over \$46M in the 4 weeks ended mid-January 2018.”).

As a result of this huge increase in revenue and unit sales, the JUUL System held dominant market share. Ex. 2001, ¶142. For example, by August 2018, one analyst estimated JUUL to have approximately 70% of market share. Ex. 2034, 8; Ex. 2035, 3; Ex. 2032, 4. Another report similarly estimated 72% market share for JUUL by September 2018. Ex. 2036, 2. A report from 2018 also showed that JUUL’s competitors saw decreasing market share shortly after the 2015 JUUL System launch. Ex. 2037, 3.

PUBLIC VERSION

The success of JUUL System also contributed to growth in the ENDS market as a whole, which had experienced relatively flat sales before the JUUL System. *See* Ex. 2035, 3, 5; Ex. 2036, 3; Ex. 2038, 4; Ex. 2039, 2; Ex. 2040, 3. The JUUL System accounted for a significant portion of the surveyed weekly volume sales of the ENDS pod retail market in the years following the release of the JUUL System: 43.1% of March 2017 annual growth, 90.7% of March 2018 annual growth, and over 95% of growth from April to September 2018. Ex. 2001, ¶143.

RPI Altria also recognized the commercial success of the JUUL System in its offers to potentially license JLI's intellectual property. Ex. 2001, ¶144.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]. Ex.

2041, 106:5-107:7.

F. Copying

There are several sources that have acknowledged that others began copying the JUUL System shortly after its release. Ex. 2001, ¶145.

PUBLIC VERSION

In prior investigations before the International Trade Commission involving the JUUL System, the Commission itself has observed copying of the JUUL System. Ex. 2001, ¶146. For example, the Commission has observed that “[a] number of competitors, including some respondents, have admitted to using the JUUL system as a reference when manufacturing their own ENDS products.” See Ex. 2042, 250-51.

Industry commentators have also noted copying of the JUUL System. Ex. 2001, ¶147. For example, in a letter to the U.S. Food and Drug Administration, industry commentators noted how “[m]any of the newly introduced e-cigarette products appear to be attempting to capitalize on the recent marketing success of Juul” and “new products appear to mimic the sleek design of Juul.” Ex. 2043. Copying is further evidenced by competitor marketing material that touts the fact that their products are compatible with the JUUL Device. See, e.g., Ex. 2044 (stating that “[e]ver since the Juul device burst onto the vape market, companies have been churning out ... Juul-compatible pods to keep up with the trend.”); Ex. 2047 (advertising JUUL-compatible pods).

RPI Altria has also represented that it began “working on an internal pod-based product concept designed to appeal to cigarette smokers” in June

PUBLIC VERSION

2017, two years after JUUL was launched. Ex. 2024, ¶190. This effort was called “Project Panama” and was “in the works for less than a year before it was paused to free up resources to fix the many problems plaguing Altria’s on-market products.” *Id.* Altria has said that “[a]ll told, although Nu Mark ultimately pursued at least a half dozen internal device projects, many of which were the subject of ‘years’ of effort, none ever ‘yielded fruit.’” *Id.* ¶191; Ex. 2001, ¶148.

As Altria has admitted, since it was “[u]nable to develop an e-vapor product internally, Altria did what it always did when its innovation efforts failed: It turned to acquiring existing products.” Ex. 2024, ¶192. Altria began “searching in the spring of 2017 for opportunities to branch out from MarkTen cig-a-like and to participate in the pod market.” *Id.*, ¶301. This was because “after August 8, 2016 (the predicate date under the Deeming Rule), Altria ‘didn’t have the ability . . . to develop anything internally to compete without waiting multiple years to compete, and . . . thought it was important to go scan the environment to see if there were any pod products that were available.’” *Id.* ¶302. Internally, Altria referred to this project as “Project Mule.” *Id.*, ¶303; Ex. 2001, ¶149.

PUBLIC VERSION

In late-May 2017, Altria’s Strategy & Business Development group “surveyed the market” and based on “conversations with a number of different companies” recommended that Altria pursue an acquisition of JLI. Ex. 2024, ¶305. Altria considered JUUL to be the “[t]op performer among adult smokers and vapers” and acknowledged that “‘Juul offers key benefits of a hybrid-evapor system,’ providing cig-a-like users ‘better performance without sacrificing convenience’ and open-system users ‘convenience in a non cigarette form.’” *Id.*, ¶307; Ex. 2001, ¶150.

Altria approached JLI to begin discussing a potential acquisition of, or investment in, JLI in May 2017. Ex. 2024, ¶¶306, 308. By this point, Altria had admitted that it “found itself with ‘virtually nothing in [Nu Mark’s] pipeline, in-house pipeline, for [it] to sell. Cigalike was declining very quickly. The pod business was growing exponentially, driven by JUUL. And ... [Altria was] getting [its] butt[] kicked week in and week out.’” *Id.*, ¶324. Starting in 2018 Altria shifted some of its focus to an internally-developed pod-based product, the MarkTen Elite, but ultimately did not see a viable path forward for that product given the lack of demand, product defects including excessive leaking, and constraints imposed by the existing regulatory regime. *See id.*, ¶¶570-573, 653-54; Ex. 2001, ¶151.

PUBLIC VERSION

Like its parent company Altria, Petitioners' products prior to the release of the JUUL System were cig-a-like products. Ex. 2001, ¶152. After the JUUL System was released and Petitioners observed the success of the JUUL System, Petitioners copied the design and features of the JUUL System in releasing their first pod-based product, the NJOY Ace.

X. CONCLUSION

For the foregoing reasons the Board should deny institution of this petition.

Date: March 14, 2024

By: /s/ James Glass

James M. Glass (Reg. No. 46,729)
QUINN EMANUEL URQUHART &
SULLIVAN LLP
51 Madison Avenue, 22nd Floor
New York, NY 10010
Email: jimglass@quinnemanuel.com
Phone: 212-849-7142
Fax: 212-849-7100

*Counsel for Patent Owner
JUUL Labs, Inc.*

PUBLIC VERSION**CERTIFICATE OF LENGTH (37 C.F.R. §§ 42.24)**

The undersigned hereby certifies that, according to the word-processing system used to prepare the foregoing document, this document has 10,122 words and thus complies with the applicable word limit.

Date: March 14, 2024

By: /s/ James Glass

James M. Glass (Reg. No. 46,729)
QUINN EMANUEL URQUHART &
SULLIVAN LLP

51 Madison Avenue, 22nd Floor
New York, NY 10010

Email: jimglass@quinnemanuel.com

Phone: 212-849-7142

Fax: 212-849-7100

Counsel for Patent Owner
JUUL Labs, Inc.

PUBLIC VERSION

CERTIFICATE OF SERVICE (37 C.F.R. §§ 42.6(E), 42.105(A))

The undersigned hereby certifies that the foregoing document was served in its entirety on March 14, 2024 upon the following parties via Electronic Mail:

elizabeth.weiswasser@weil.com
anish.desai@weil.com
adrian.percer@weil.com
anne.cappella@weil.com
sutton.ansley@weil.com
christopher.pepe@weil.com
matthew.sieger@weil.com
taylor.lawrence@weil.com

Date: March 14, 2024

By: /s/ James Glass
James M. Glass (Reg. No. 46,729)
QUINN EMANUEL URQUHART &
SULLIVAN LLP
51 Madison Avenue, 22nd Floor
New York, NY 10010
Email: jimglass@quinnemanuel.com
Phone: 212-849-7142
Fax: 212-849-7100

*Counsel for Patent Owner
JUUL Labs, Inc.*