

NJOY LLC et al. v. JUUL Labs, Inc.

IPR2023-00231

U.S. Patent No. 10,130,123

Patent Owner's Demonstratives

Hearing: March 19, 2025

Grounds

Ground	Claim(s) challenged
1. Worm (anticipation)	14, 27, 32
2. Worm + knowledge of a POSITA	14, 27, 32
3. Worm + Levitz	14, 27, 32
4. Thorens + Weigensberg	14, 27, 32
5. Worm + Lamb	14-16, 18, 27-29, 31, 32
6. Worm + knowledge of a POSITA + Lamb	14-16, 18, 27-29, 31, 32
7. Worm + Levitz + Lamb	14-16, 18, 27-29, 31, 32
8. Thorens + Weigensberg + Lamb	14-16, 18, 27-29, 31, 32

Grounds

- Institution Decision:

Ground	Reason
1. Worm (anticipation)	No “air flow path”
2. Worm + knowledge of a POSITA	No “air flow path”
3. Worm + Levitz	
4. Thorens + Weigensberg	No motivation to combine
5. Worm + Lamb	No motivation to combine
6. Worm + knowledge of a POSITA + Lamb	No motivation to combine
7. Worm + Levitz + Lamb	No motivation to combine
8. Thorens + Weigensberg + Lamb	No motivation to combine

Summary: Disputed Issues (All Claims)

- ***“sealed air flow path” between receptacle and cartridge*** (14.E, 27.G; Grounds 1-3, 5-7):
 - Grounds 1 & 2:
 - Worm does ***not*** disclose a “sealed airflow path”
 - The ID correctly concluded that the “gap” (cavity 725) Petition relies on is not a “sealed airflow path”
 - Ground 3:
 - No motivation to combine Worm and Levitz
 - Petitioner’s combination does not modify Worm’s cavity 725
- ***No motivation to combine Thorens and Weigensberg*** (Grounds 4, 8):
 - Panel correctly concluded no motivation to replace Thorens’s puff detection system with Weigensberg’s differential sensor
- ***Strong objective indicia of non-obviousness***
 - JUUL System is coextensive with Claims 14 and 27
 - Petitioner disputes only nexus requirement

Overview of '123 Patent

Overview of the '123 Patent

14. A vaporizer device body comprising:
a cartridge receptacle configured to insertably receive a cartridge containing a vaporizable material;
a pressure sensor configured to output sensor readings, 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 sealed air flow path comprising a channel formed between an interior surface of the cartridge receptacle and an exterior surface of the cartridge, the sealed air flow path passing from an air inlet, through the channel and to a heater and an outlet of a mouth-piece within the cartridge; and
a gasket around the pressure sensor, the gasket configured to seal the device air path from the sealed air flow path.

Overview of the '123 Patent

FIG. 10A

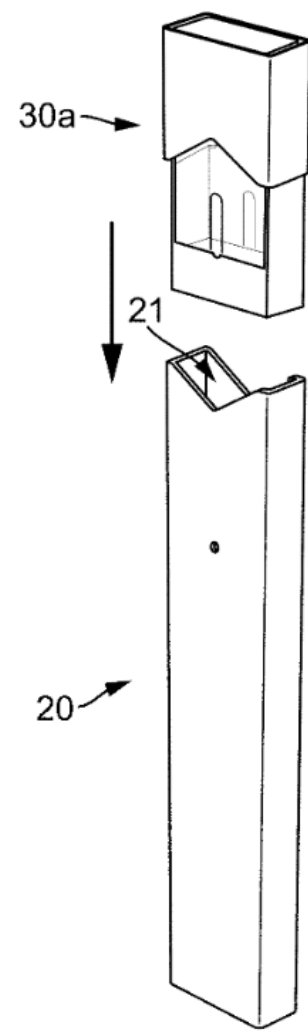
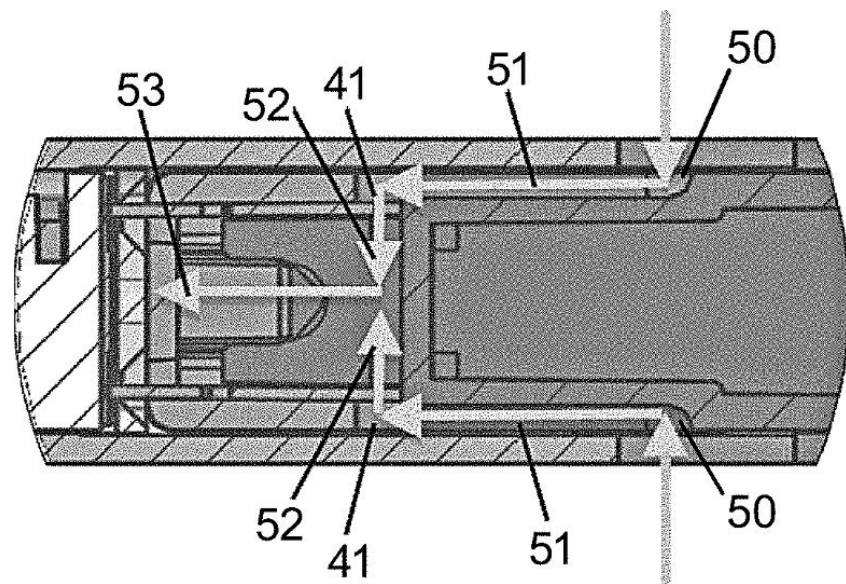


FIG. 12

Summary of the Prior Art

Summary of Prior Art: Worm (Ex. 1004)

“When the cartridge 704 engages the control body 702, air draw on the mouthend of the cartridge (see element 130 in FIG. 1) causes air to enter the air inlet channel 788 of the coupler 724 through one or more air inlet apertures 789 and flow into the air flow entry 741 a of the projection 741 from which the drawn air passes through the interior of the base 740 and into the cartridge 704. Air flow through the device thus can proceed from the air inlet channel 788 downstream toward the mouthend of the cartridge 704.”

Ex. 1004 (Worm) at ¶75; POR 60

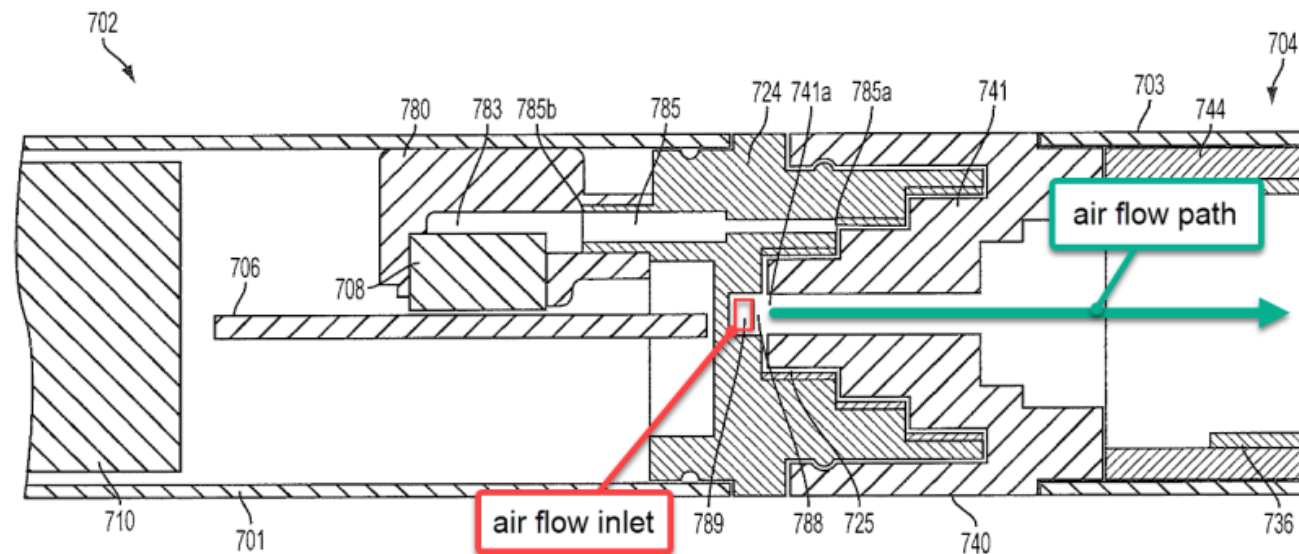


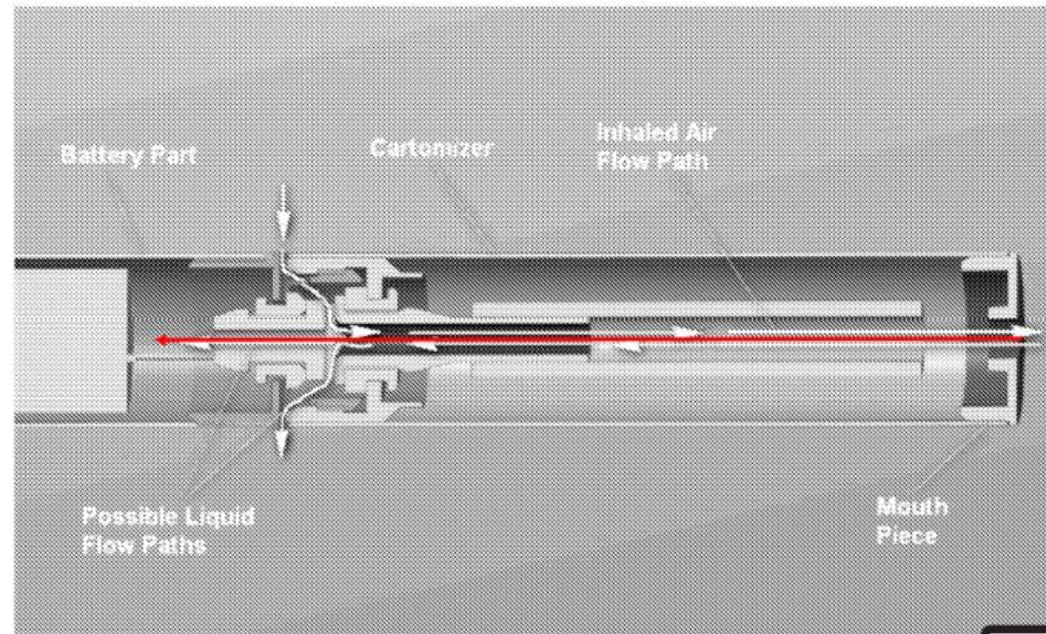
FIG. 7

Ex. 1004 (Worm) at Fig. 7;
POR 60

Summary of Prior Art: Levitz (Ex. 1010)

“As shown in Figure 16, one possible draw-back of this arrangement is that upon exhalation, any excess fluid (vapor, saliva, etc.) could be blown through orifice 35, into the pressure differential channel and into the Battery. An alternative embodiment for a battery post designed to minimize this problem is shown in Figure 17.”

Ex. 1010 (Levitz) at ¶44; POR 8-9

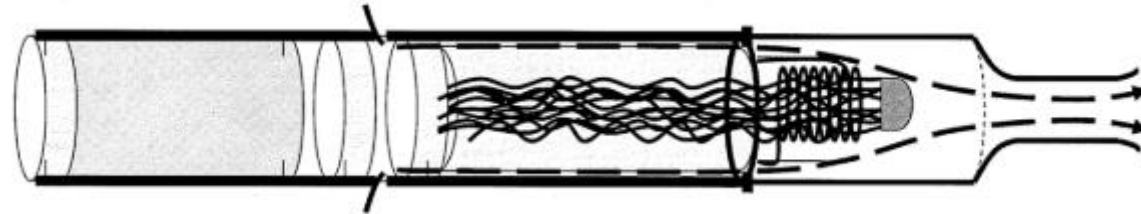


Ex. 1010 (Levitz) at Fig. 16

Summary of Prior Art: Thorens (Ex. 1016)

“Preferably, the electric circuitry comprises a sensor to detect air flow indicative of a user taking a puff. The sensor may be an electro-mechanical device. Alternatively, the sensor may be any of: a mechanical device, an optical device, an opto-mechanical device and a micro electro mechanical systems (MEMS) based sensor.”

Ex. 1016 (Thorens) at ¶15; POR 78



Ex. 1016 (Thorens) at Fig. 3

Summary of Prior Art: Weigensberg (Ex. 1016)

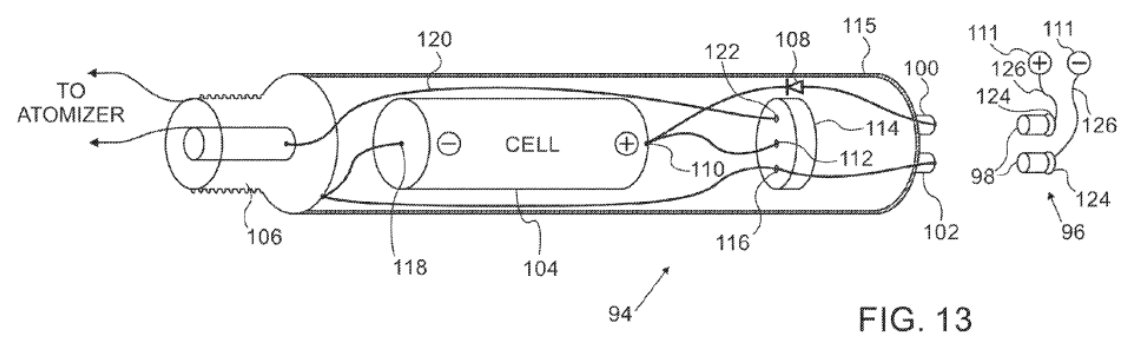


FIG. 13

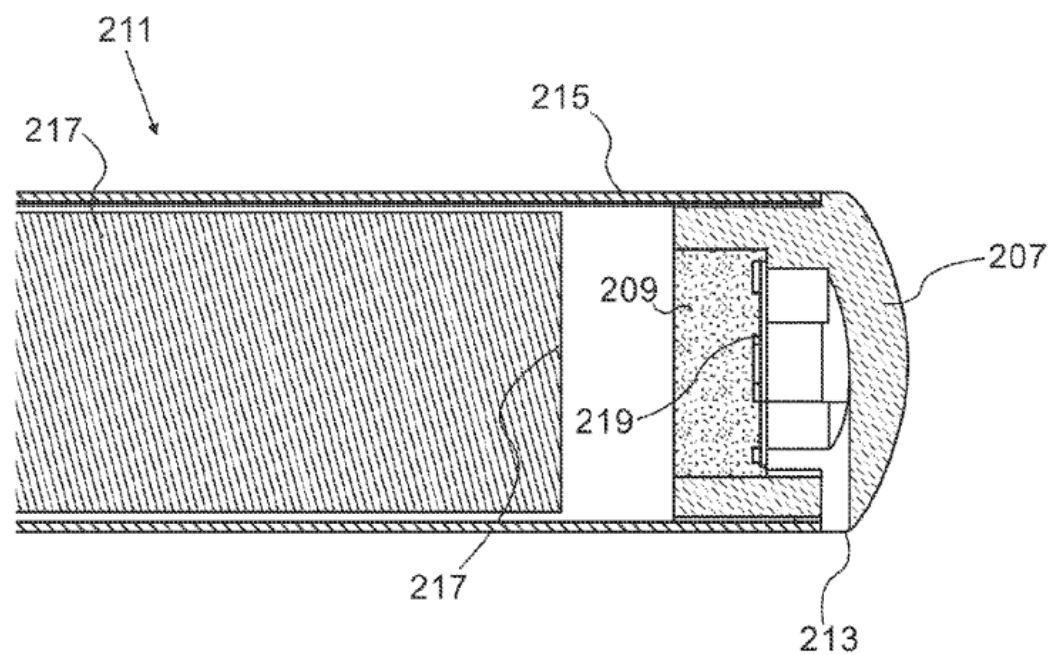


FIG. 24

Ex. 1016 (Weigensberg) at Figs. 13, 24

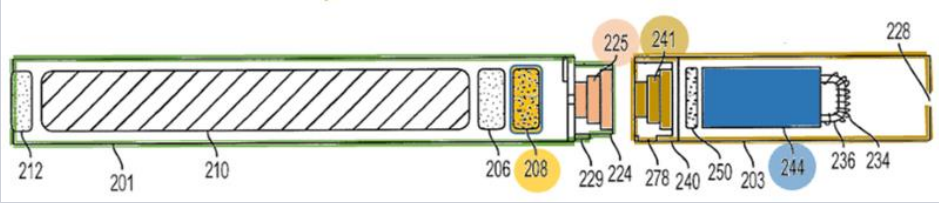
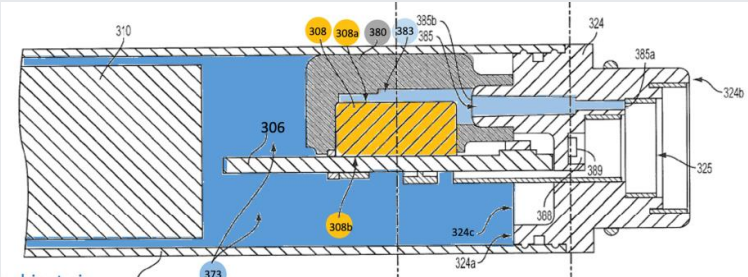
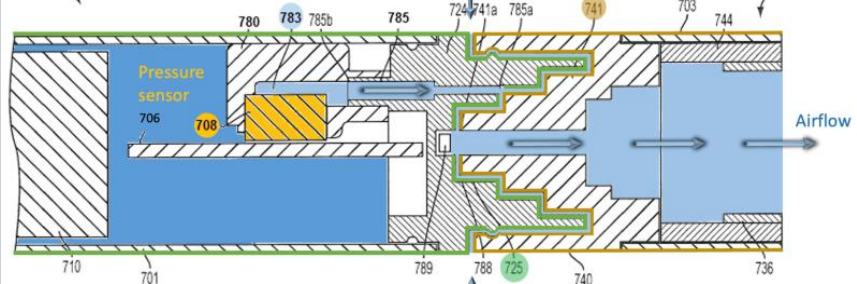
Ground 1: Worm does not anticipate an “air flow path” between cartridge and receptacle

Ground 1 (Anticipation)

- Petitioner improperly relies on multiple, disparate embodiments to establish anticipation
- Petitioner incorrectly relies on Worm's cavity 725 as an air flow path:
 - *Worm describes tightly coupled "protrusions" and "recesses"*
 - The Figure's protrusions and recesses are tightly coupled to attach the cartridge and receptacle, indicating no air flow between the components
 - *Multiple 90-degree turns in the gap would cause a labyrinth seal*
 - Petitioner's expert agreed that 90-degree turns would "reduce air flow"
 - *During inhalation, negative pressure causes the components to be pulled together, forming a seal*
 - Negative pressure would still be measured, but air would not flow through cavity 725 during inhalation
 - *Worm describes "electrical contacts"*
 - The Figure's electrical contacts indicate no gap between the cartridge and receptacle

Ground 1 (Anticipation): Petition Relies on Multiple Embodiments in Worm

- Petitioner relies on disclosures from different embodiments: Figures 2, 5, and 7

Limitations	Embodiment
[14.A], [14.B] (Pet. 28-29)	Figure 2 
[14.C] (Pet. 32)	Figure 5 
[14.D], [14.E], [14.F] (Pet. 34-45)	Figure 7 

- Worm **expressly** states that these are different embodiments

Ground 1 (Anticipation): Petition Relies on Multiple Embodiments in Worm

- Petitioner's expert admitted they were different embodiments:

“[Worm] goes through multiple different embodiments.”

Ex. 2052 (McAlexander Tr.) at 74:9-11; Sur-Reply 3

“Q. It's a little different here because 208 is described as a flow sensor while 308 is described as a pressure sensor? A. [Y]es.”

Ex. 2052 (McAlexander Tr.) at 46:3-11; Sur-Reply 3-4

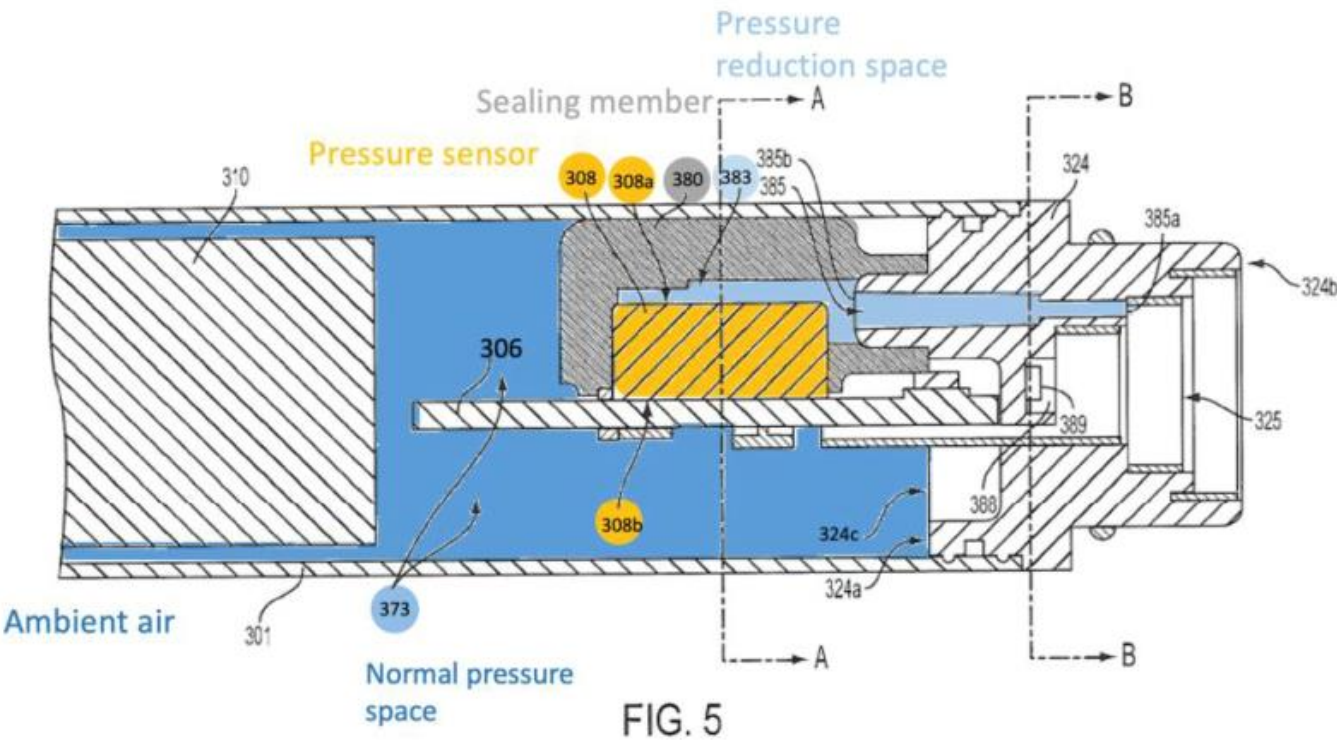
- Panel agreed:

“[T]he teachings of Worm are found in different, disparate embodiments—and Petitioner does not show otherwise”

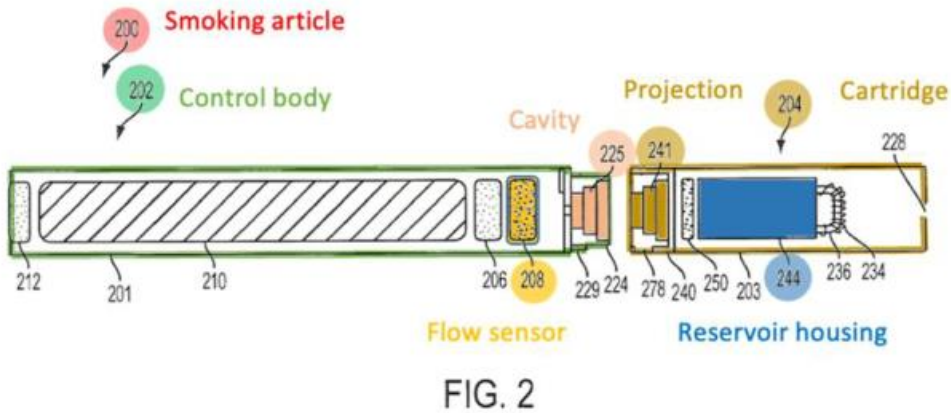
Paper 15 (ID) at 19

Ground 1 (Anticipation): Petition Relies on Multiple Embodiments in Worm

- Petitioner relies on disclosures from different embodiments: Figures 2, 5, and 7
 - Figures 5 and 7 uses a chambered “pressure sensor,” not a flow sensor:
 - Figure 2 uses a “flow sensor” that doesn’t require chambers:



Ex. 1004 (Worm) at Fig. 5 (annotated by Petitioner); Pet. 35

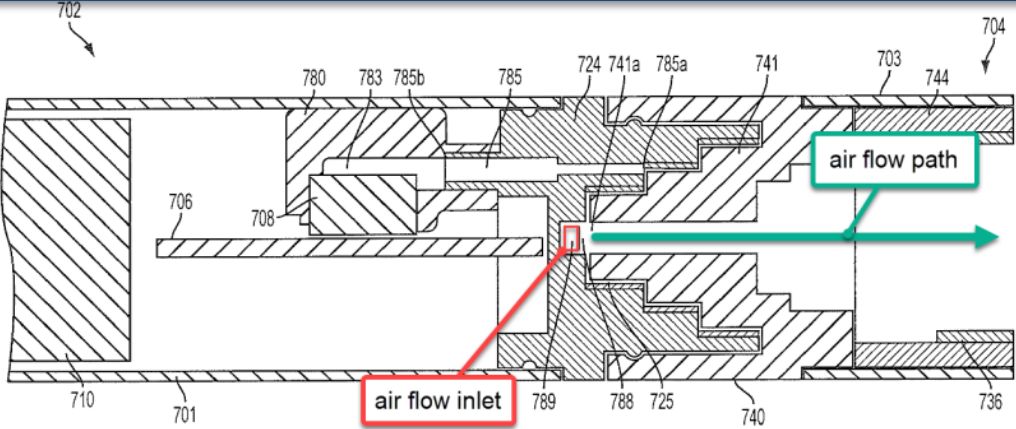


Ex. 1004 (Worm) at Fig. 2 (annotated by Petitioner); Pet. 30

Ground 1 (Anticipation): Worm's Cavity 725 is Not an "Air Flow Path"

- Worm's air flow path goes through center of device, not in between cartridge and receptacle

“When the cartridge 704 engages the control body 702, air draw on the mouthend of the cartridge (see element 130 in FIG. 1) causes air to enter the air inlet channel 788 of the coupler 724 through one or more air inlet apertures 789 and flow into the air flow entry 741 a of the projection 741 from which the drawn air passes through the interior of the base 740 and into the cartridge 704. Air flow through the device thus can proceed from the air inlet channel 788 downstream toward the mouthend of the cartridge 704.”



Ex. 1004 (Worm) at ¶75; POR 60

Ex. 1004 (Worm) at Fig. 7; POR 60

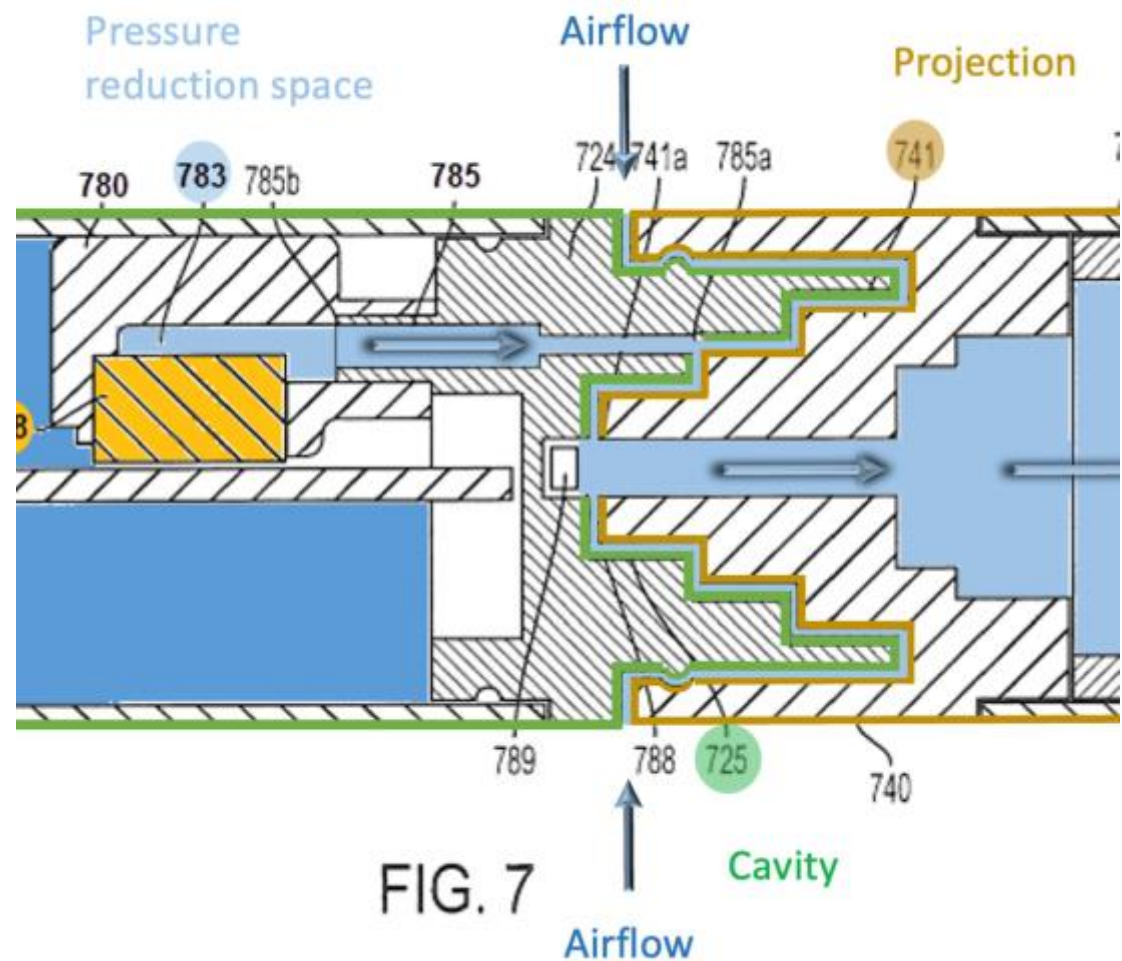
FIG. 7

- Panel agreed:

“Patent Owner’s argument that airflow through Worm’s device would flow through the primary inlet passageway and **not through the channel identified by Petitioner** appear persuasive on this record.”

Ground 1 (Anticipation): Worm's Cavity 725 is Not an “Air Flow Path”

- Petitioner's air flow path:



Pet. 15

Ground 1 (Anticipation): Worm's Cavity 725 is Not an "Air Flow Path"

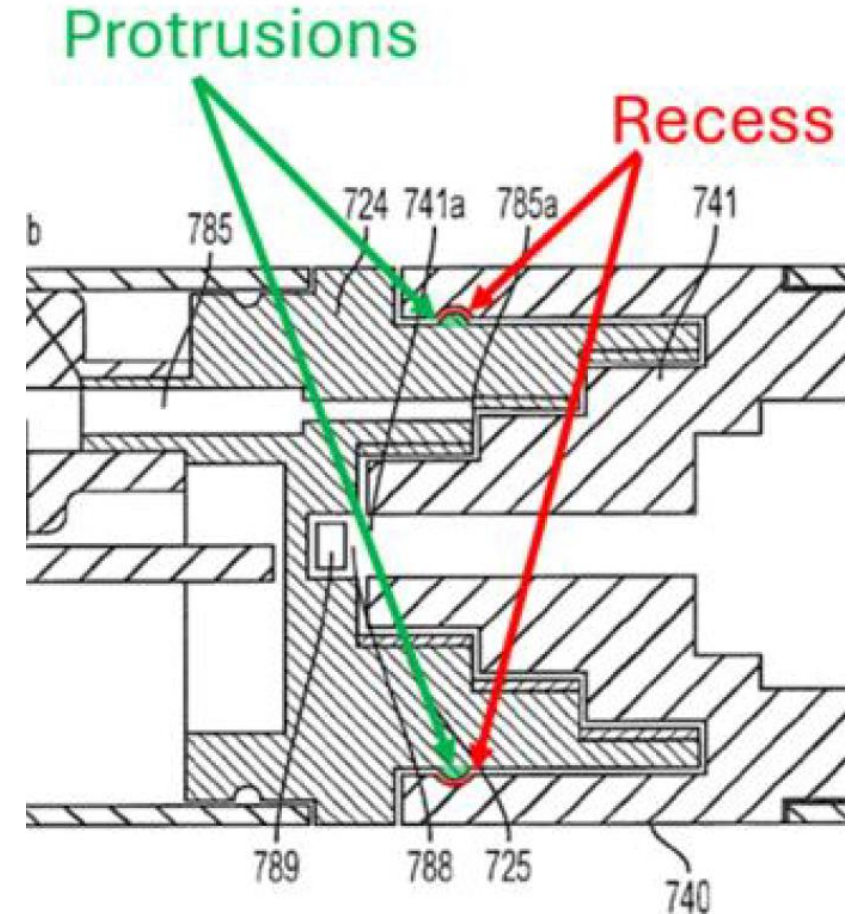
- Worm's cavity 725 includes **protrusions**
- These protrusions tightly secure the cartridge and receptacle
- Petitioner's expert agrees should have minimal movement:

"[A] detent structure in each Worm embodiment secures the cartridge to the device"

Reply 12

"Well, certainly if someone has an e-cigarette and it's sloppy, it's very loose, that's certainly not going to be a good experience. So I would anticipate that one would certainly want to minimize the amount of movement, but it doesn't mean that it can't move."

Ex. 2054 (1/8/25 McAlexander Tr.) at 19:4-9; Sur-Reply 9-10



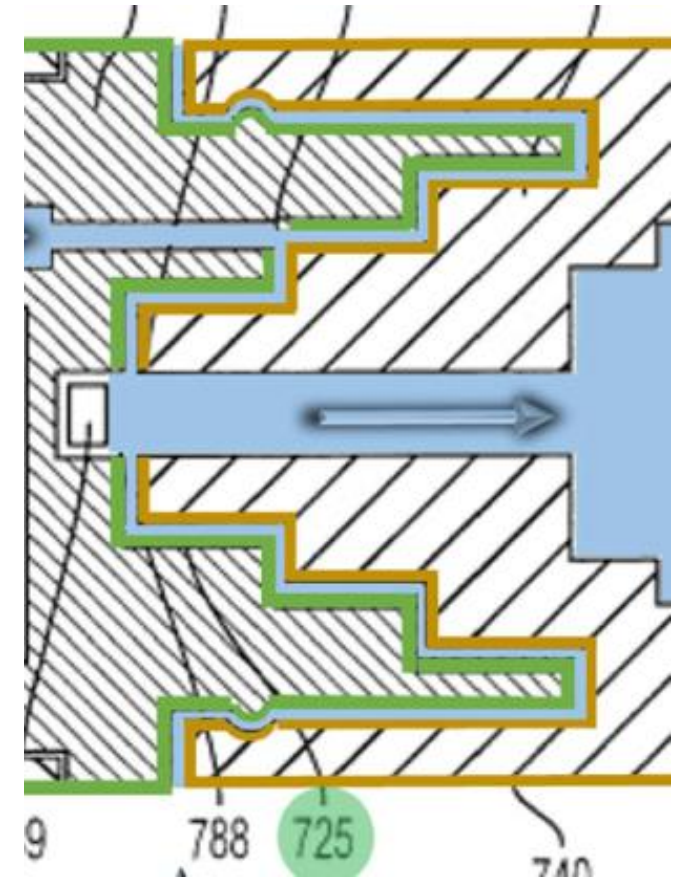
Ex. 1004 (Worm) at Fig. 7 (annotated by Petitioner); Reply 14

Ground 1 (Anticipation): Worm's Cavity 725 is Not an "Air Flow Path"

- Worm's cavity 725 is a "*labyrinth seal*":

"It is well-known that a series of right angles in a small passageway, like the one allegedly shown in Worm, diminishes airflow and causes a corresponding drop in any transmitted pressure. The gap Petitioners allege to be a channel has several of these angles. It is also well-known among ordinary artisans that airflow is a very sensitive function of the size of the passageway and geometry of the switchbacks. Even if Worm did teach a "gap," it could not be uniform and would need to be small to function as an electrical connector. This results in a minimal airflow, particularly when there is another source of airflow (the disclosed air inlet aperture) that would control the airflow in the device."

Ex. 2053 (Collins Decl.) at ¶53; POR 65



Ex. 1004 (Worm) at Fig. 7 (annotated by Petitioner); Pet. 36

Ground 1 (Anticipation): Worm's Cavity 725 is Not an "Air Flow Path"

- Worm's cavity 725 is a "**labyrinth seal**":
- Petitioner's expert agreed that each 90-degree bend would diminish air flow

"Q. And each step represents an angle that would reduce air flow, right?"

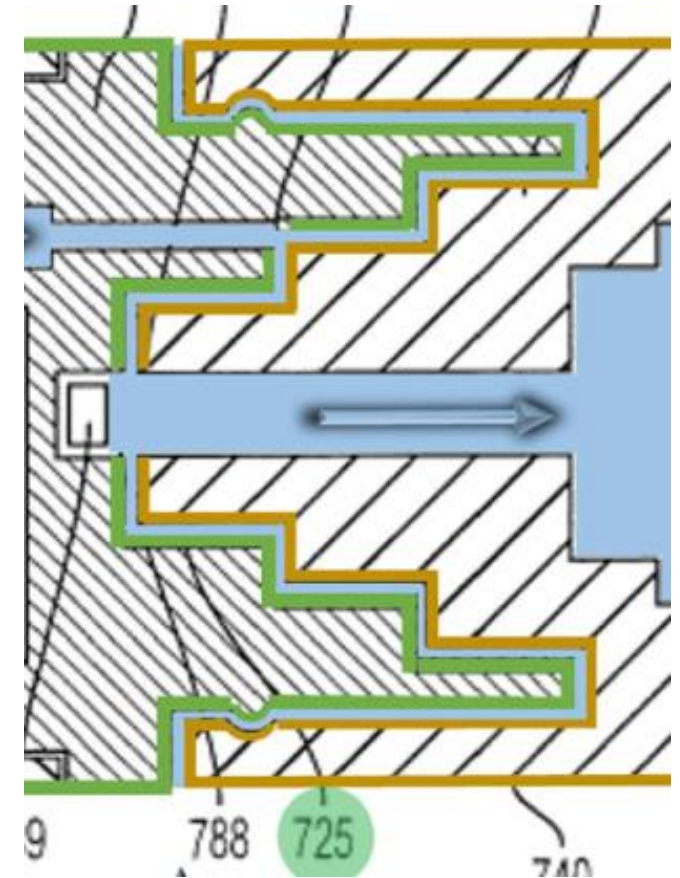
A. Not any issue with that statement."

Ex. 2052 (McAlexander ITC Tr.) at 55:6-10; POR 66

"Q. And the way those work is that every time the fluid encounters another bend, the flow of fluid is reduced, right?"

A. That is correct, yes."

Ex. 2052 (McAlexander ITC Tr.) at 64:9-12; POR 66

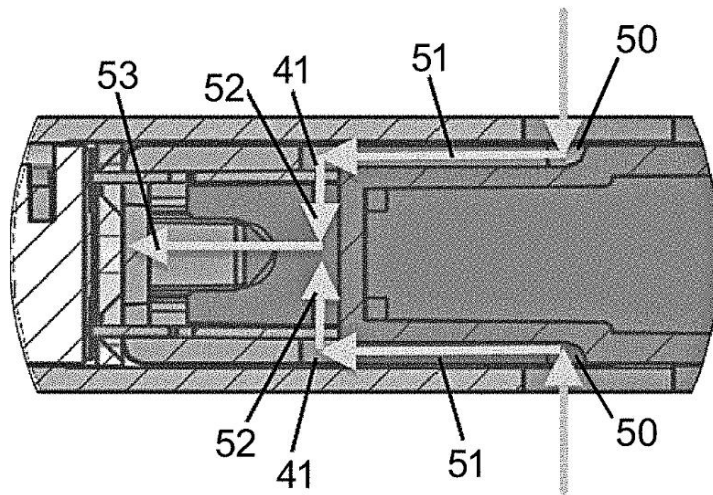


Ex. 1004 (Worm) at Fig. 7 (annotated by Petitioner); Pet. 36

Ground 1 (Anticipation): Worm's Cavity 725 is Not an “Air Flow Path”

- Worm's cavity 725 is a “**labyrinth seal**”:
- Reply argues that labyrinth seals are “not fluid-tight.” Reply 9.
 - Petitioner relies on reference describing “extremely high speed” **turbine engines**
- Reply mischaracterizes ‘123 patent Figure 10a as a “labyrinth seal” – Figure 10a depicts airflow through an **open chamber**:

FIG. 10A



“Q. [T]hese arrows labeled 52, 53 ... is there a 90-degree channel for the air to flow through after it enters hole 41?”

A. No. **It's an open chamber.** ... As I tried to indicate, air doesn't turn those 90 degrees. It will basically follow a path determined by physics.”

Ex. 1040 (Collins Tr.) at 112:15-113:10; Sur-Reply 11

Ex. 1001 (123 Patent) at Fig. 10A; Sur-Reply 11

Ground 1 (Anticipation): Worm's Cavity 725 is Not an "Air Flow Path"

- Worm's cavity 725 would **seal on inhalation**
- Worm's cavity 725 will seal during inhalation due to negative pressure bringing the cartridge and receptacle together:

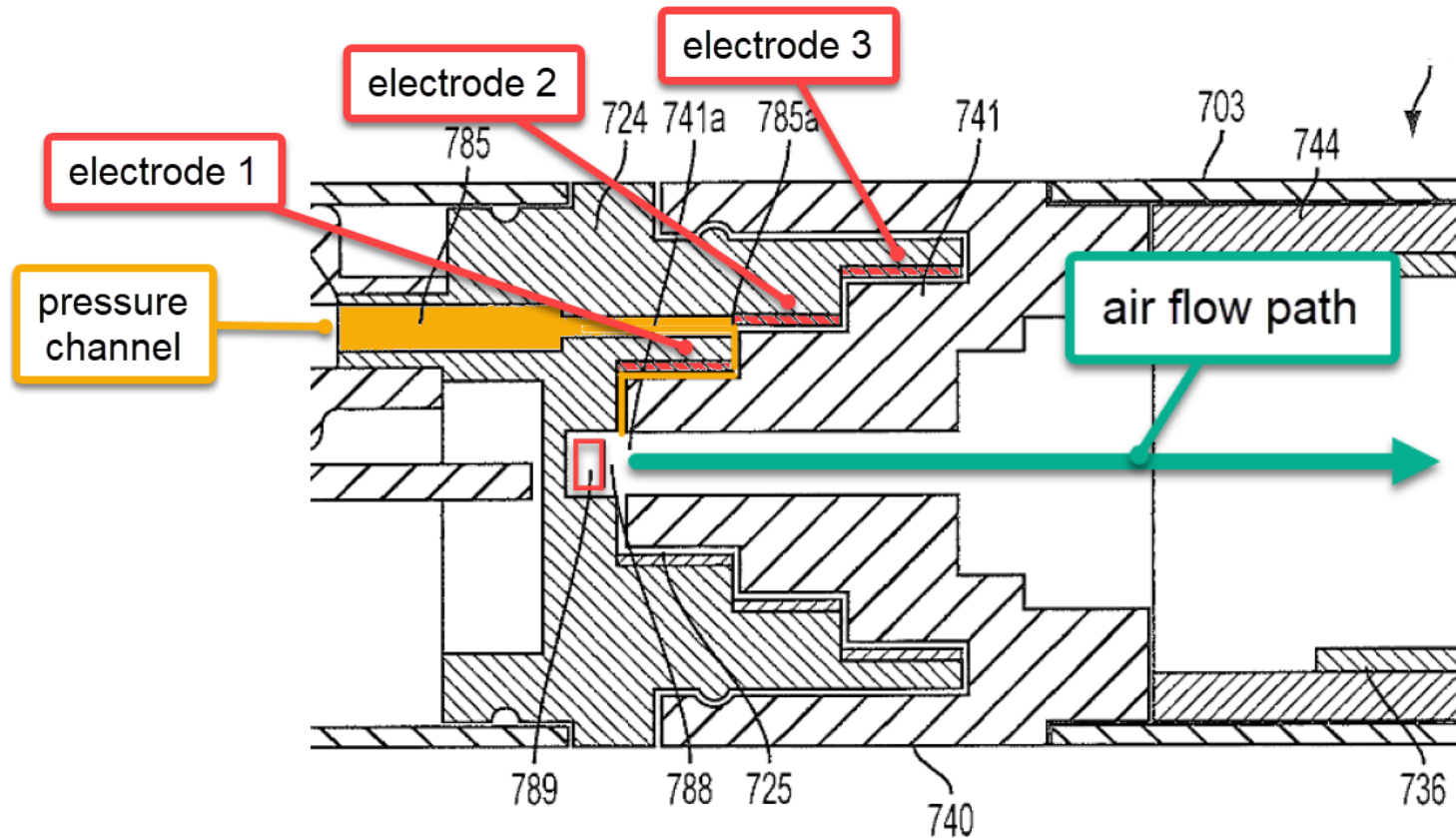
“[W]hen a user inhales on the mouthpiece of the cartridge 704, the control body 702 and cartridge 704 will be pulled together to form a seal. The resulting negative pressure event is still detected by the pressure sensor 708, because it is in fluid communication with the cavity 725 through the pressure channel 785. However, airflow through Petitioners' alleged gap would be substantially limited by this sealing action.”

Ex. 2053 (Collins Decl.) at ¶54; POR 66-67

- Reply incorrectly states this would seal the pressure chamber

Ground 1 (Anticipation): Worm's Cavity 725 is Not an "Air Flow Path"

- Worm's cavity 725 is obstructed by **electrical contacts**
- Worm teaches that the "electrical contacts" are "circular metal bands" that "**come into contact**" with the cartridge. Ex. 1004, ¶58.



- Panel:

“Patent Owner’s arguments that airflow in the gap between cavity 725 and projection 741 would require modifying worm and would be ... prevented by electrical contacts ... appear to have some merit.”

Paper 15 (ID) at 24

Ground 1 (Anticipation): Worm's Cavity 725 is Not an "Air Flow Path"

- Worm's air inlet is **not optional** Pet. 37, Reply 5.
 - **All of the embodiments** the Petition relies on require air inlet 789.
 - Worm does **not** state the air inlet 789 is "optional"

"In some embodiments, the coupler 324 can include an air inlet channel 388 that can be adapted to distribute drawn, ambient air through an electronic smoking article including the coupler."

Ex. 1004 (Worm) at ¶69; Sur-Reply 12

"Further, the control body shell 201 can include an air intake 218, which may be a notch in the shell where it connects to the coupler 224 that allows for passage of ambient air around the coupler and into the shell where it then passes through the cavity 225 of the coupler and into the cartridge through the projection 241."

Ex. 1004 (Worm) at ¶56; Sur-Reply 12-13

Ground 1 (Anticipation): Worm's Cavity 725 is Not an "Air Flow Path"

- Even if air inlet 789 is optional that does not make cavity 725 an air flow path
- The lack of an air inlet channel would make the device a "fuming device,"

"Such a device would be a "fuming" type device. Such devices heat the liquid in an enclosed space and the liquid that is vaporized substantially expands in an otherwise closed volume and exits through the inhalation tube where it can be mixed with air and inhaled. 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.

Ex. 2053 (Collins Decl.) at ¶67; POR 73

- Reply argues a "fuming device" still requires an air inlet
- Dr. Collins explained that the air inlet wouldn't be Figure 7's cavity 725, but instead closer to the user's mouth, **after** the vaporizer/cartomizer.

"That's a configuration called a fuming device where, again, the vapor, when it -- when the liquid is vaporized, it expands and goes to the user. So you look at most of the, kind of the mods and pod version, that's what they do and then they have an **air inlet above** to mix the air with the vapor that's generated. So it's -- that's a known technique."

Ex. 1040 (Collins Tr.) at ¶104:11-18; Sur-Reply 13

Ground 2: Worm does not render obvious an “air flow path” between cartridge and receptacle

Ground 2: Worm's Cavity 725 Does Not Make an “Air Flow Path” Obvious

- Petitioner: obvious that Worm's cavity 725 is an “air flow path”
- **Incorrect:**
 - *Not desirable to permit additional air flow because air flow must be tightly controlled*
 - Air flow affects draw resistance, vapor production, throat hit and must be tightly controlled
 - *Multiple air flow paths results in issues with manufacturing tolerances*
 - JUUL solved this problem only with a “finely tuned gap” embodied by the claims
 - *An air flow path is not a mere design choice*
 - Air flow path must be carefully engineered and controlled

Ground 2: Worm's Cavity 725 Does Not Make an “Air Flow Path” Obvious

- Dr. Collins:

“A POSITA would understand that the amount of airflow in an e-cigarette must be tightly controlled to allow for an adequate user experience—and such tight control requires strict engineering. It was known that the size, shape, and location of air inlets and air passages affects draw resistance, which impacts, among other things, vapor and aerosol production, the size distribution of the visible vapor cloud, and nicotine delivery to a user. These are details that must be carefully balanced so that the use of the vaporizer provides the desired user experience. I understand that Mr. McAlexander also agrees that when designing an e-cigarette to simulate the feel of a traditional cigarette, it is desirable to have a similar draw resistance and throat hit, both of which are a function of air flow. Ex. 2052, 26:1-27:13. Petitioners ignore such details and do not even argue the limitation is obvious.”

Ex. 2053 (Collins Decl.) at ¶¶63; POR 71-72

Ground 2: Worm's Cavity 725 Does Not Make an "Air Flow Path" Obvious

- Mr. McAlexander agreed that air flow directly affects draw resistance and throat hit:

“Q. These products are designed so that the throat hit in an e-cigarette is similar to the throat hit from a traditional cigarette, right?

A. Generally, that is part of the design considerations.

Q. And these products are designed so that the draw resistance in an e-cigarette is similar to the draw resistance in a traditional cigarette, right?

A. That's one of the goals, yes.

Q. And the throat hit and the draw resistance are both, at least in part, a function of the air flow through the device, right?

A. In part. It's more a function of the puff itself, but air flow does contribute to it, yes.

Ex. 2052 (McAlexander ITC Tr.) at 26:16-27:13; POR 12-13

Ground 2: Worm's Cavity 725 Does Not Make an "Air Flow Path" Obvious

- Dr. Collins:

"In addition, it creates a pressure difference, an error between the pressure sensor and the vapor channel, the vapor vacuum, because there is a pressure drop, yet there is an air flow through that - through that portion of the channel. And that pressure drop is going to be dependent on the specifics of the geometry, which can change, and the flow rate. So it would be an unreliable way of actually monitoring the pressure in the chamber at 789. ...

[W]hat we're trying to do is monitor the pressure at 783 so we want the pressure at 783 to mirror the pressure at 789. If there is a flow between where that -- basically where that purple line is, that creates a pressure drop and that pressure drop is dependent on the geometry, which can vary and is dependent on the flow rate.

So the difference between the pressure at 783 and the pressure that you want to monitor, which is the pressure at 789, is going to be significant if there is air flow through that channel. So a POSA would know you don't want air flow through that channel."

Ex. 1040 (Collins Tr.) at 118:14-120:9; Sur-Reply 23

Ground 2: Worm's Cavity 725 Does Not Make an "Air Flow Path" Obvious

- Reply argues that a POSITA would know how to properly size the passage. Reply 14-15.
- **Incorrect** – Fig. 7's cavity 725 cannot be arbitrarily sized:

“Well, certainly if someone has an e-cigarette and it's sloppy, it's very loose, that's certainly not going to be a good experience. So I would anticipate that one would certainly want to minimize the amount of movement, but it doesn't mean that it can't move.”

Ex. 2054 (McAlexander Tr.) at 18:18-19:9; Sur-Reply 14

“By contrast, the additional air inlet and passage as proposed by Petitioners are based on several factors that can vary 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-ups 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. 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.”

Ex. 2053 (Collins Decl.) at ¶64; POR 72

Ground 2: Worm's Cavity 725 Does Not Make an "Air Flow Path" Obvious

- Dr. Collins explained that adding another air flow path would increase manufacturing variability:

“[T]he additional air inlet and passage as proposed by Petitioners are based on several factors that can vary 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-ups 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. 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.”

Ex. 2053 (Collins Decl.) at ¶64; POR 72

Ground 2: Worm's Cavity 725 Does Not Make an "Air Flow Path" Obvious

- Reply argues that JUUL considered its device "flawed" because of manufacturing variability but was still successful. Reply 15.
- Petitioner is incorrect – the same email Petitioner relies on establishes that manufacturing variability was a major issue for user experience, which JUUL was able to solve

"Smokers crave consistency in every regard, including RTD [resistance to draw]. Personally, I find the variability in JUUL unpleasantly surprising at best, and very frustrating at worst. ... But while we're in the **process of tightening up / shifting tolerances**, we should pay attention to the feel of the pull as well. ...

I'd say our design is flawed, in that the air path is defined by the gap between broad surfaces of two parts (extrusion and pod tank)....

Just a suggestion: might be worth having an ME either in PD or GS take a fresh look at this. Someone with intimate knowledge of the tolerances that can be realistically held on the extrusion and tank part, or close to vendors / someone who does. Due to our 'unorthodox' design, I imagine we won't be able to get it quite as consistent as we'd like and will instead be limited by the feasible tolerances. **Could be wrong.**"

Ground 2: Worm's Cavity 725 Does Not Make an “Air Flow Path” Obvious

- PO solved the issues identified by Mr. Bowen with a “finely tuned gap”

“The resistance to draw is controlled by a finely tuned gap between the outer wall of the JUULpod and the inner wall of the JUUL Device, as well as the grid of small holes in the bottom of the JUULpod. The JUUL System draw resistance is designed to be similar to or lower than a cigarette, sufficiently high to ensure the user draws long enough for vapor production to occur, and acceptable to the user.”

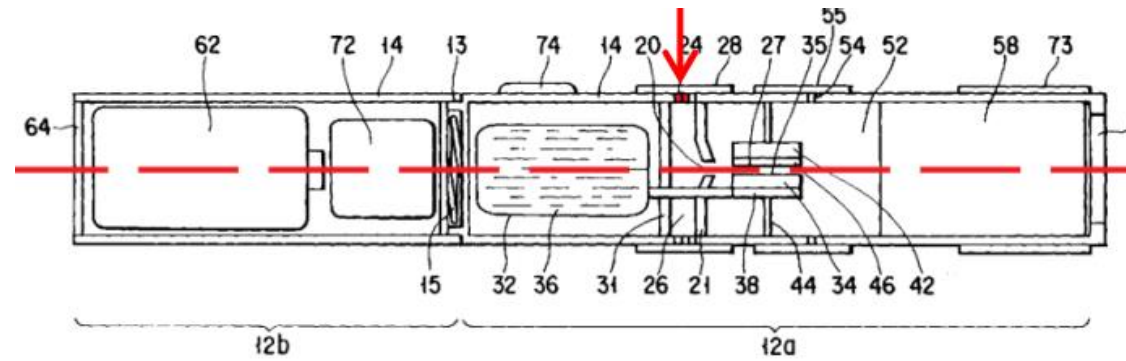
Ex. 2003 (JUUL FDA Application) at 26; Sur-Reply 15

Ground 2: Worm's Cavity 725 Does Not Make an “Air Flow Path” Obvious

- Reply argues that Dr. Collin's testified obvious to put air flow channel “anywhere”
- Petitioner relies on decade-old testimony from a different case, involving different patents and prior art, and a different definition of a POSITA. Reply 16.
- Dr. Collins's testimony related to an e-cigarette with a **single, integrated housing**, not **coupled components**

“Therefore, a skilled person would also have found the placement of air flow channel anywhere in an e-cigarette **housing** to be an obvious implementation choice.”

Ex. 1039, ¶60; Sur-Reply 16



- Dr. Collins's testimony has no relevance here

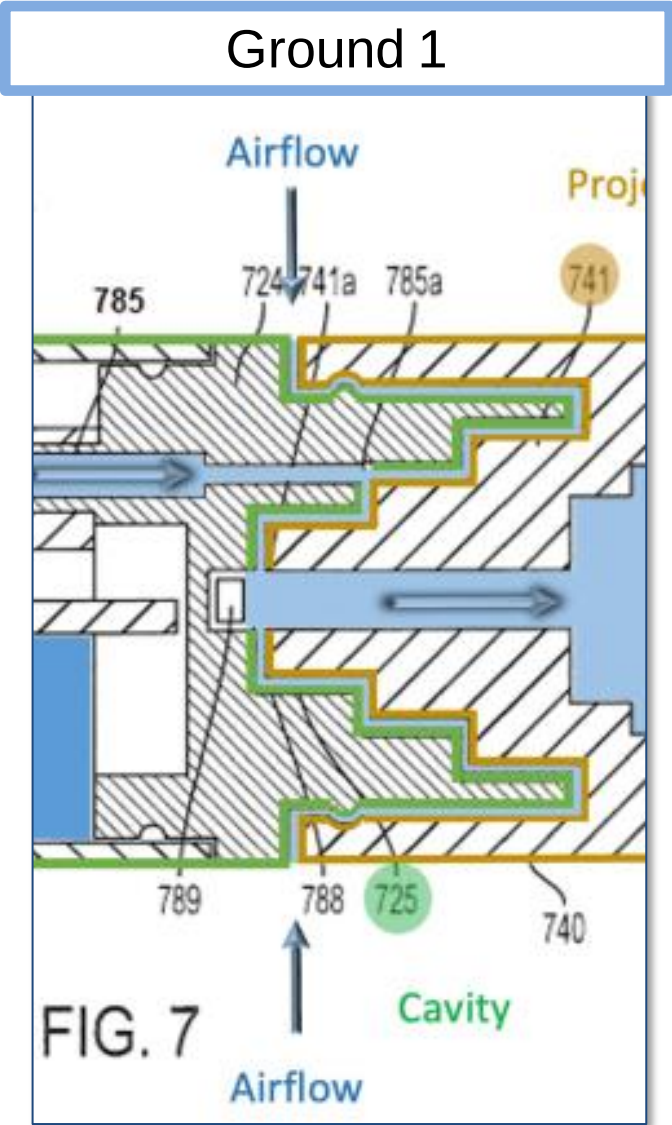
**Ground 3: Worm + Levitz do not render obvious an “air flow path”
between cartridge and receptacle**

Ground 3: Worm and Levitz Do Not Make an “Air Flow Path” Obvious

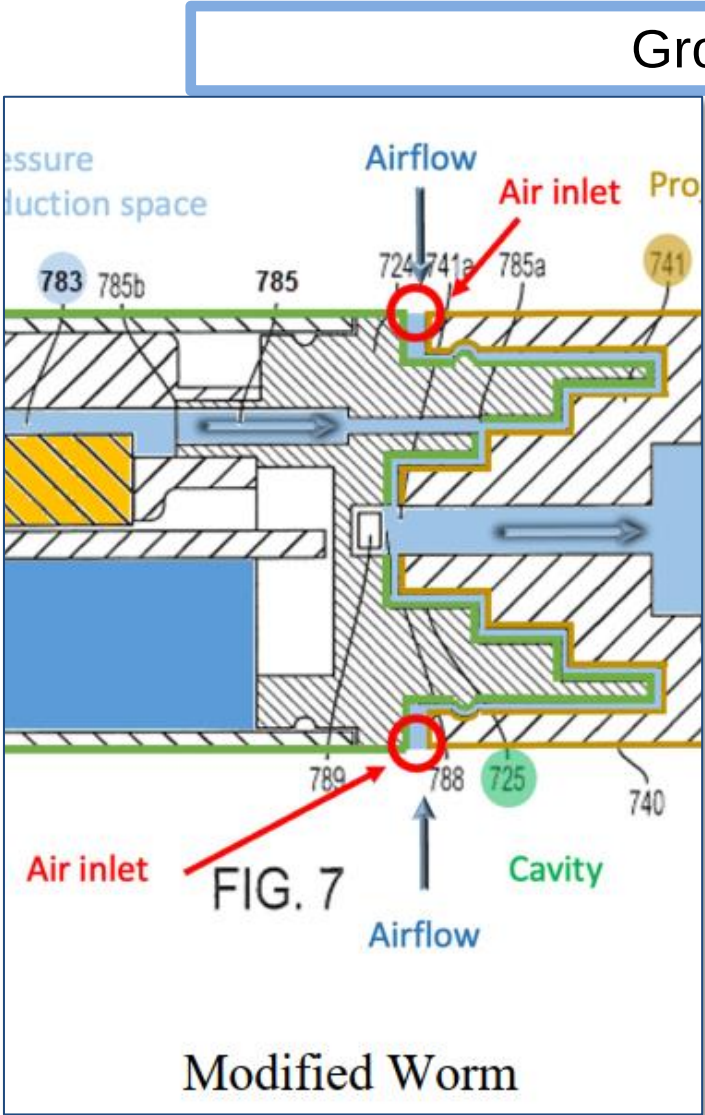
- Petitioner proposes modifying Worm to include Levitz’s side air inlets
- Petitioner’s combination fails:
 - *Worm/Levitz combo relies on **same** airflow path as grounds 1 and 2*
 - *A POSITA would not be motivated to modify Worm to include Levitz’s side inlets:*
 - Worm already prevents back flow
 - Adding Levitz’s inlet would exacerbate back flow problems
 - The device would be harder to clean
 - Air inlets are not merely a “design choice,” they must be carefully engineered

Ground 3: Worm and Levitz Do Not Make an “Air Flow Path” Obvious

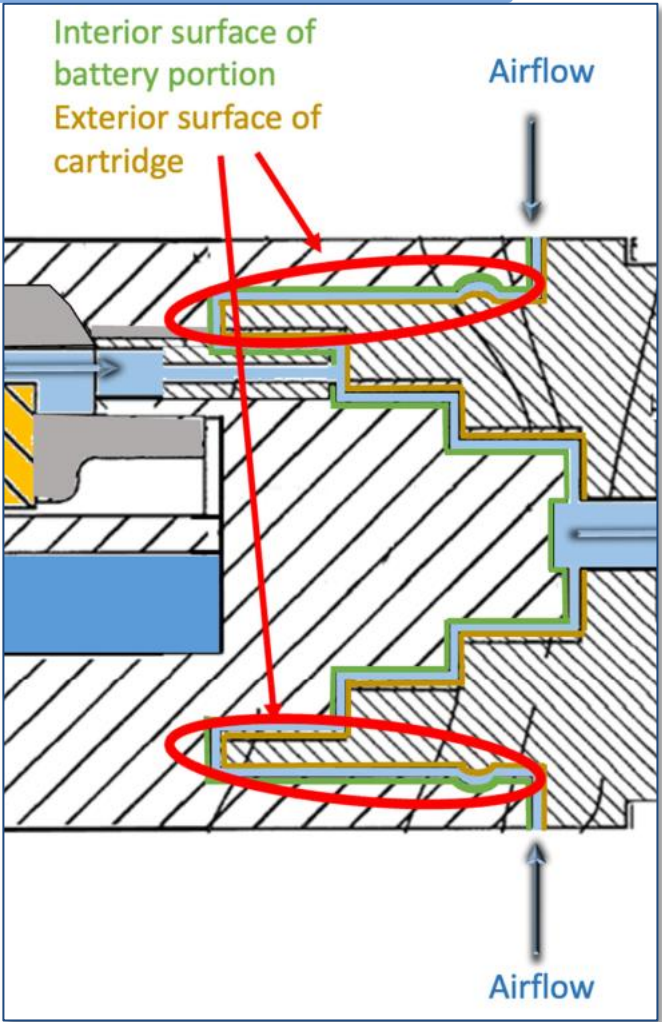
- Ground 3’s “air flow path” is identical to Ground 1’s “air flow path” – Worm’s “cavity 725” :



Pet. 37



Pet. 56



Pet. 62

Ground 3: Worm and Levitz Do Not Make an “Air Flow Path” Obvious

- Petitioner’s combination only proposes adding air inlets to Worm:

“To the extent there is any argument that Worm does not disclose **air entering** at the interface between control body 702 and cartridge 704, it would have been obvious to a POSA to modify Worm in view of Levitz. **Specifically, a POSA would have modified Worm so that outside air enters at the interface** between the battery and cartridge connection.”

Pet. 56

“[P]lacement of **air inlets** is a design choice. ... [H]aving an air enter at the connection interface was well known in the art.”

Pet. 57

“Worm as modified in view of Levitz includes additional pathways **for any vapor that backflows to exit the periphery** of the connection rather than into the negative pressure space.”

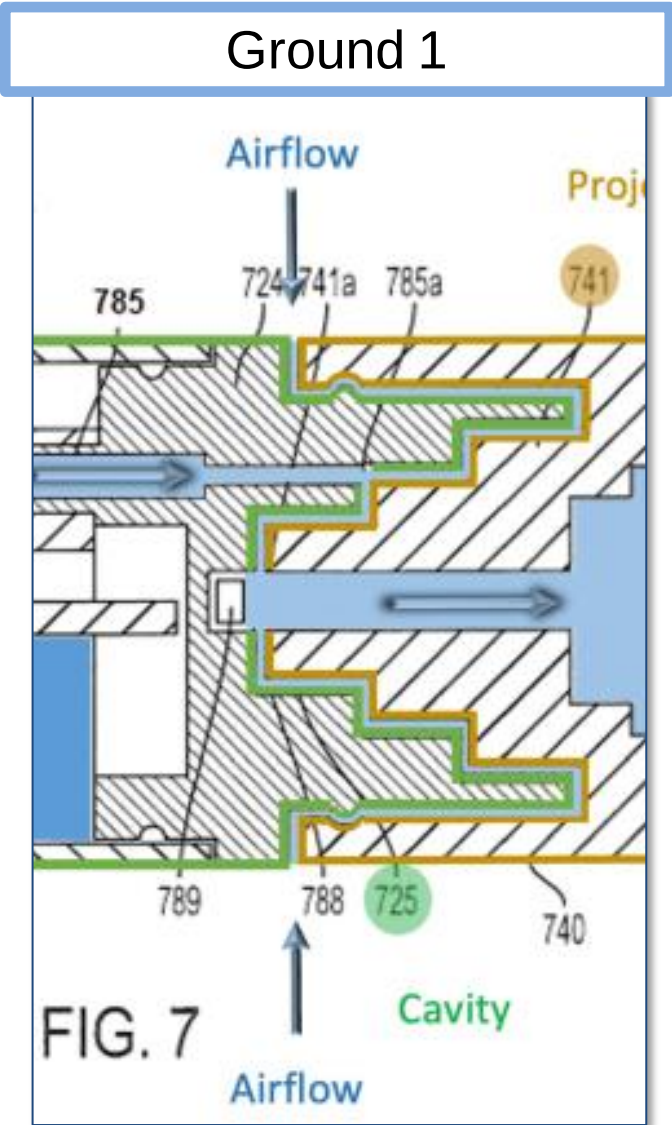
Pet. 59

“A POSA would have been motivated to **use an inlet at the interface** ...”

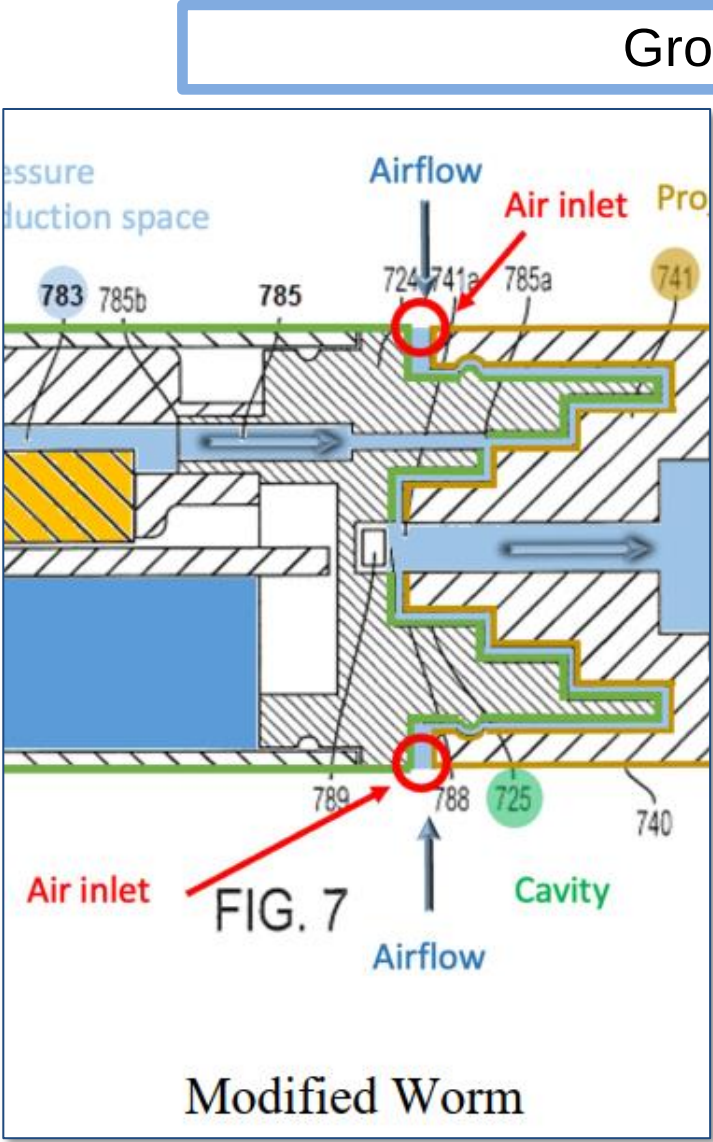
Pet. 60

Ground 3: Modified Worm's "Airflow Path" has the *Same* Deficiencies as Grounds 1 and 2

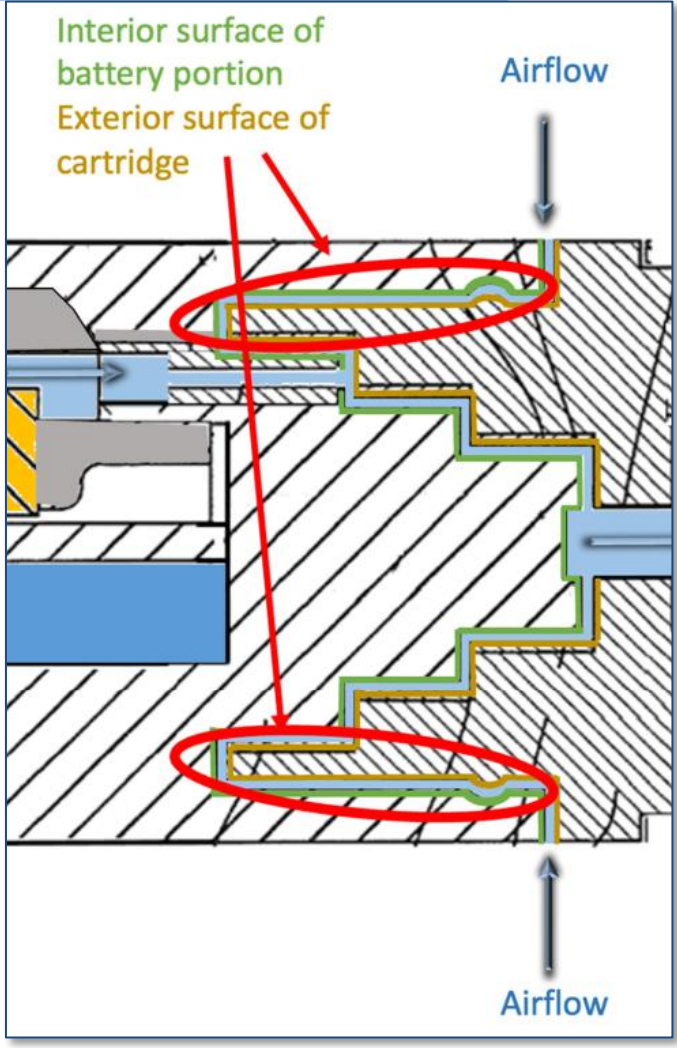
- Modified Worm's cavity 725 includes *protrusions*



Pet. 37



Pet. 56

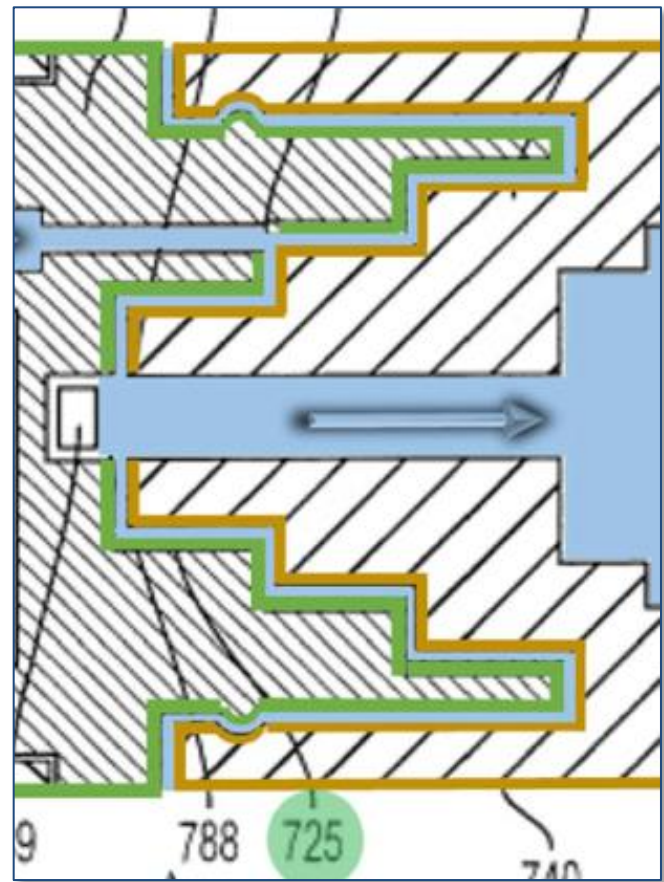


Pet. 62

Ground 3: Modified Worm's "Airflow Path" has the **Same** Deficiencies as Grounds 1 and 2

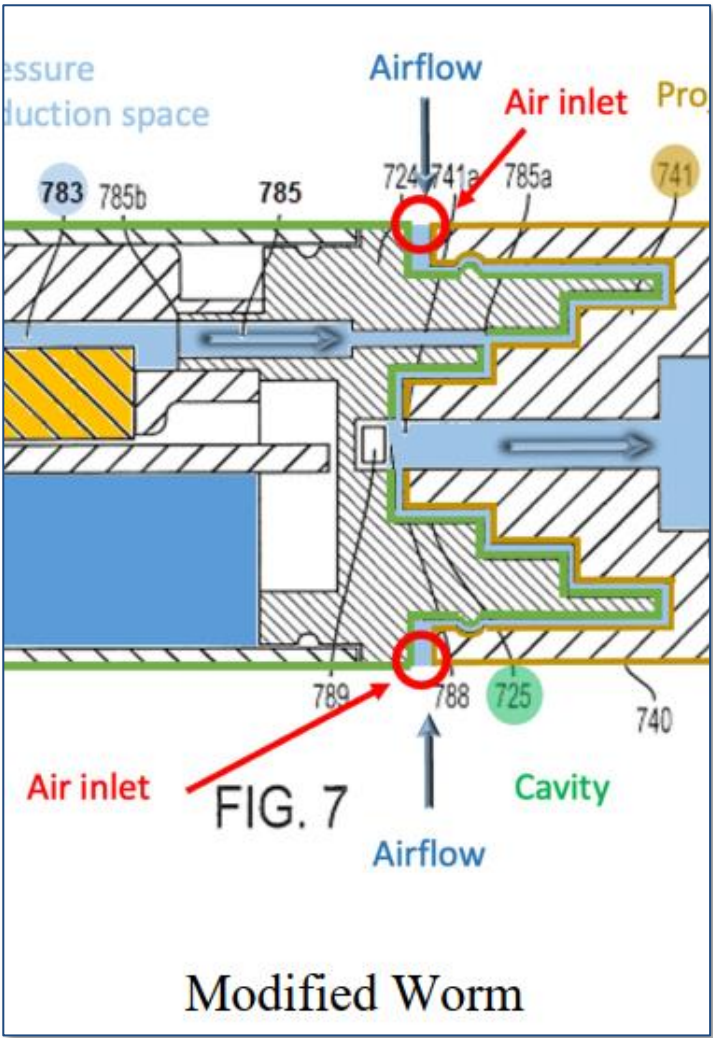
- Modified Worm's cavity 725 is a "**labyrinth seal**":

Ground 1

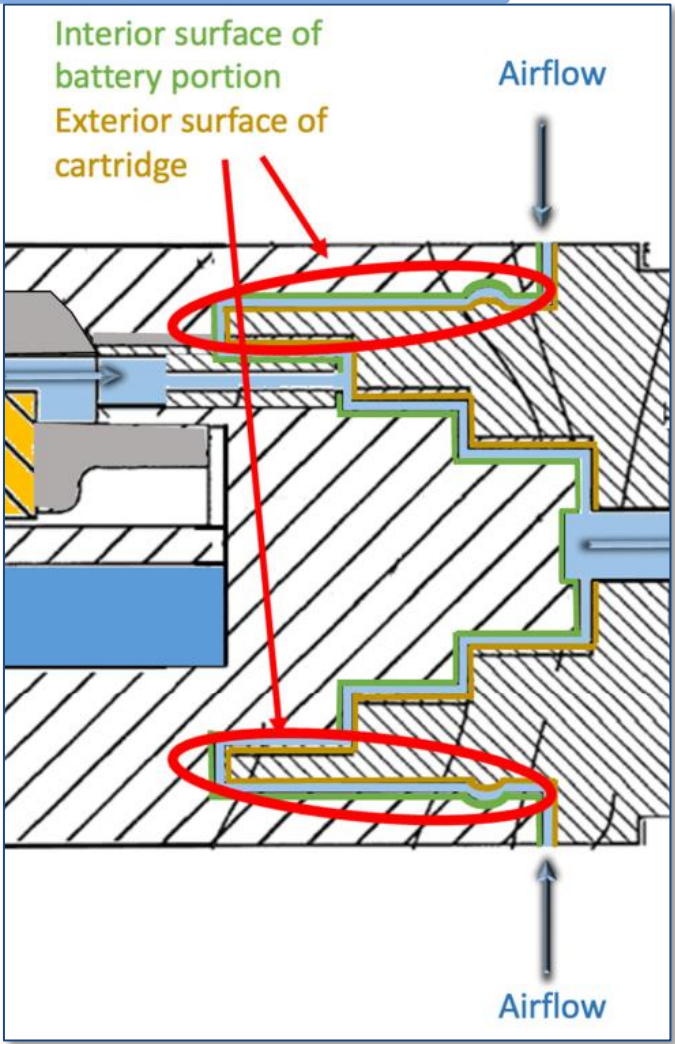


Pet. 37

Ground 3



Pet. 56



Pet. 62

Ground 3: Modified Worm's "Airflow Path" has the *Same* Deficiencies as Grounds 1 and 2

- Modified Worm's cavity 725 would *seal on inhalation*
- Worm's cavity 725 will seal during inhalation due to negative pressure bringing the cartridge and receptacle together:

“[W]hen 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. The resulting negative pressure event is still detected by the pressure sensor 708, because it is in fluid communication with the cavity 725 through the pressure channel 785. However, airflow through Petitioners' alleged gap would be substantially limited by this sealing action.”

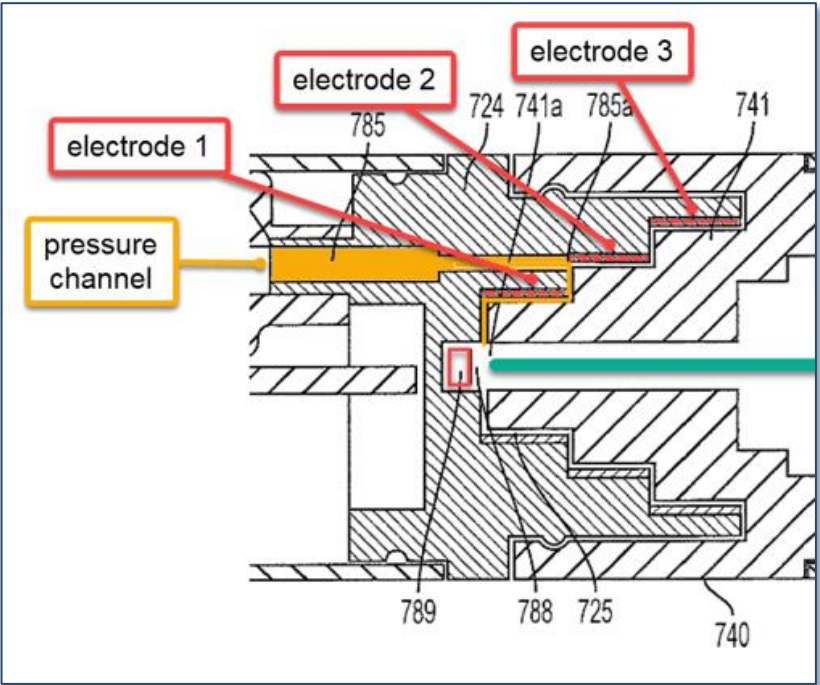
Ex. 2053 (Collins Decl.) at ¶54; POR 66

- Reply incorrectly states this would seal the pressure chamber

Ground 3: Modified Worm's “Airflow Path” has the *Same* Deficiencies as Grounds 1 and 2

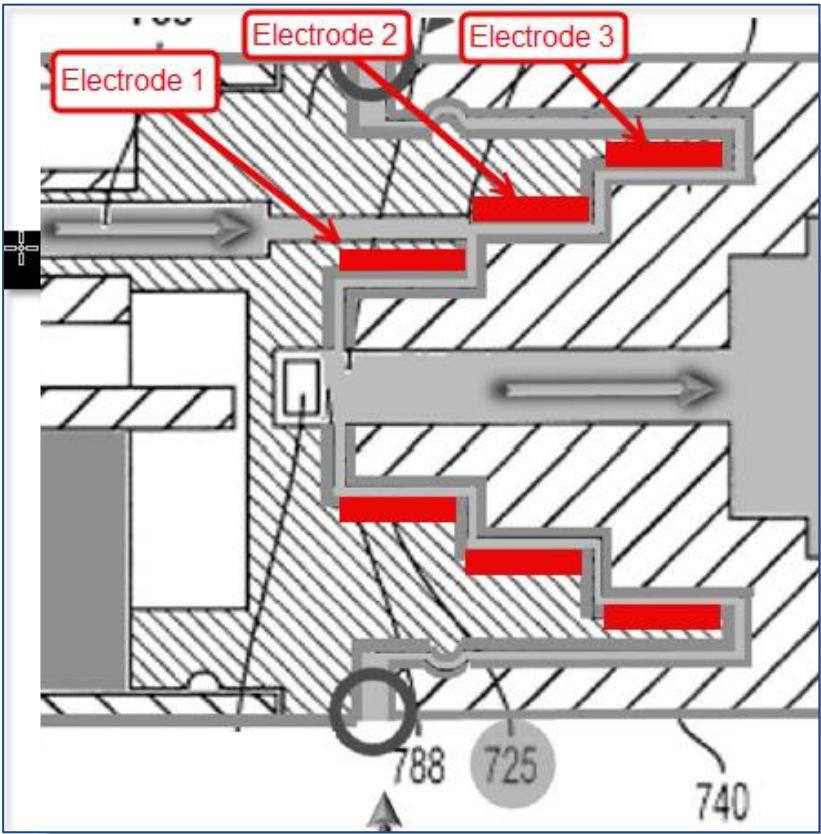
- Modified Worm's cavity 725 is obstructed by *electrical contacts*

Ground 1

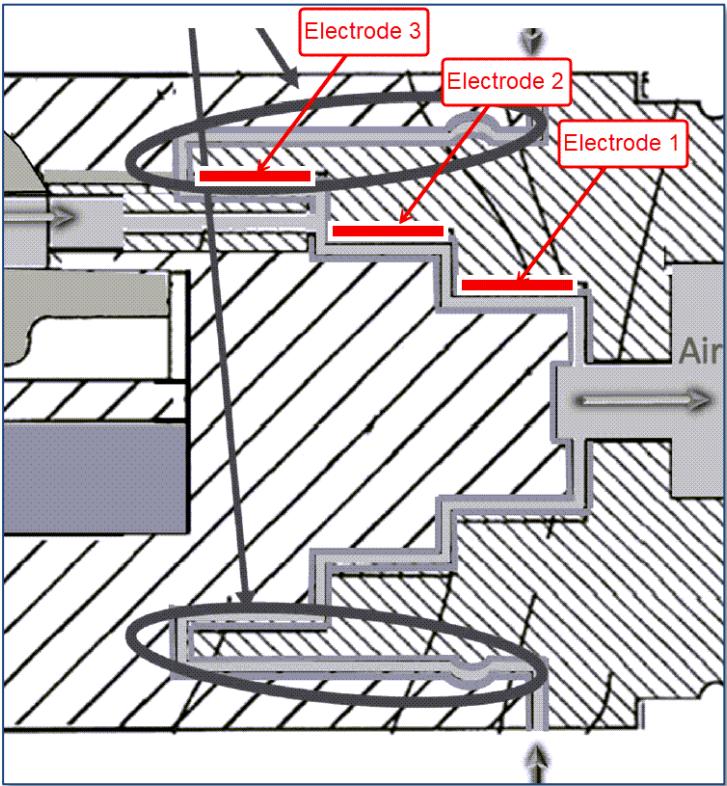


Pet. 37

Ground 3



Pet. 56 (further modified by Patent Owner); POR 5,7,13



Pet. 62 (further modified by Patent Owner); POR 5,7,13

Ground 3: Modified Worm's "Airflow Path" has the **Same** Deficiencies as Grounds 1 and 2

- Dr. Collins:

“A POSITA would understand that the amount of airflow in an e-cigarette must be tightly controlled to allow for an adequate user experience—and such tight control requires strict engineering. It was known that the size, shape, and location of air inlets and air passages affects draw resistance, which impacts, among other things, vapor and aerosol production, the size distribution of the visible vapor cloud, and nicotine delivery to a user. These are details that must be carefully balanced so that the use of the vaporizer provides the desired user experience. I understand that Mr. McAlexander also agrees that when designing an e-cigarette to simulate the feel of a traditional cigarette, it is desirable to have a similar draw resistance and throat hit, both of which are a function of air flow. Ex. 2052, 26:1-27:13. Petitioners ignore such details and do not even argue the limitation is obvious.”

Ex. 2053 (Collins Decl.) at ¶63; POR 71-72

Ground 3: Modified Worm's "Airflow Path" has the **Same** Deficiencies as Grounds 1 and 2

- Dr. Collins explained that adding another air flow path would increase manufacturing variability:

“[T]he additional air inlet and passage as proposed by Petitioners are based on several factors that can vary 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-ups 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. 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.”

Ex. 2053 (Collins Decl.) at ¶64; POR 72

Ground 3: Modified Worm's "Airflow Path" has the **Same** Deficiencies as Grounds 1 and 2

- Dr. Collins:

"In addition, it creates a pressure difference, an error between the pressure sensor and the vapor channel, the vapor vacuum, because there is a pressure drop, yet there is an air flow through that - through that portion of the channel. And that pressure drop is going to be dependent on the specifics of the geometry, which can change, and the flow rate. So it would be an unreliable way of actually monitoring the pressure in the chamber at 789. ...

[W]hat we're trying to do is monitor the pressure at 783 so we want the pressure at 783 to mirror the pressure at 789. If there is a flow between where that -- basically where that purple line is, that creates a pressure drop and that pressure drop is dependent on the geometry, which can vary and is dependent on the flow rate.

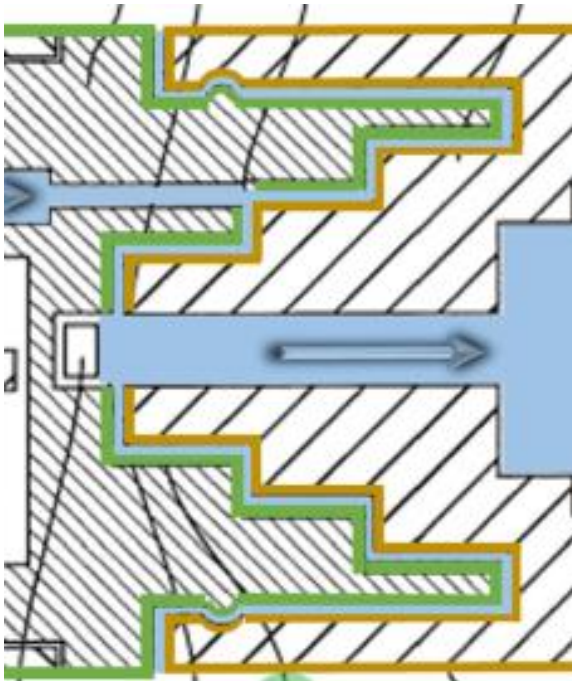
So the difference between the pressure at 783 and the pressure that you want to monitor, which is the pressure at 789, is going to be significant if there is air flow through that channel. So a POSA would know you don't want air flow through that channel."

Ex. 1040 (Collins Tr.) at 118:14-120:9; Sur-Reply 23

Ground 3: Modified Worm's "Airflow Path" has the *Same* Deficiencies as Grounds 1 and 2

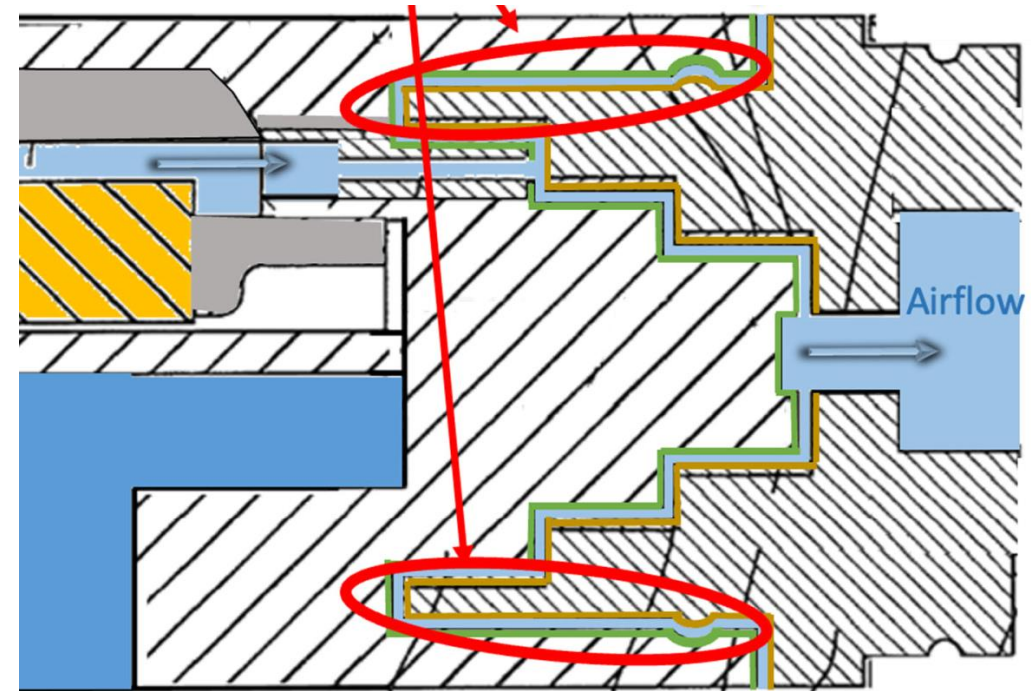
- Petitioner argues that it's "reversed" worm is a new airpath (Rep. 17-18):

Ground 1



Pet. 37

Ground 3



Pet. 62

- Petition: reversing the coupling does not change Worm's device:

"A POSA would have had a reasonable expectation of success in reversing the coupling in Worm since it is a design choice. The design would **not have meaningfully impacted the rest of the device** and it maintains the coupling stability."

Pet. 62

Ground 3: “air flow path” – No Motivation to Combine

- Petition argues a POSITA would include Levitz’s side inlets because it would provide “additional pathways for any vapor that **backflows**.”
- **Incorrect:** Worm “already solves” back flow issues

“This can incorporate a coupler element that includes an exterior opening that allows external air to enter the device and a pressure channel that communicates a pressure drop caused by the drawn air to an isolated segment of the device that includes a portion of the pressure sensor. Such coupler can particularly be useful to reduce or **prevent passage of liquid** from an attached cartridge through the coupler and into the control body and thus reduce or prevent contamination of the sensor or other electronic elements present in the control body.

Ex. 1004 (Worm) at ¶15; Sur-Reply 22

“Q. Certainly I have represented that Worm has already solved that”

Ex. 2052 (McAlexander ITC Tr.) at 71:7-9

- Petitioner mischaracterizes Worm, arguing it only “reduces backflow” but does not solve it. Reply 20.

Ground 3: “air flow path” – No Motivation to Combine

- Mr. McAlexander:

“Q. Now in your report -- in your report, the reason that you say a person of skill in the art would have been motivated to modify Worm in view of Levitz to locate the air inlet at the interface to the connection between the battery portion and cartridge is a disadvantage that Worm already solves by having its pressure sensor in an isolated segment of what it calls -- what it calls the device, right?

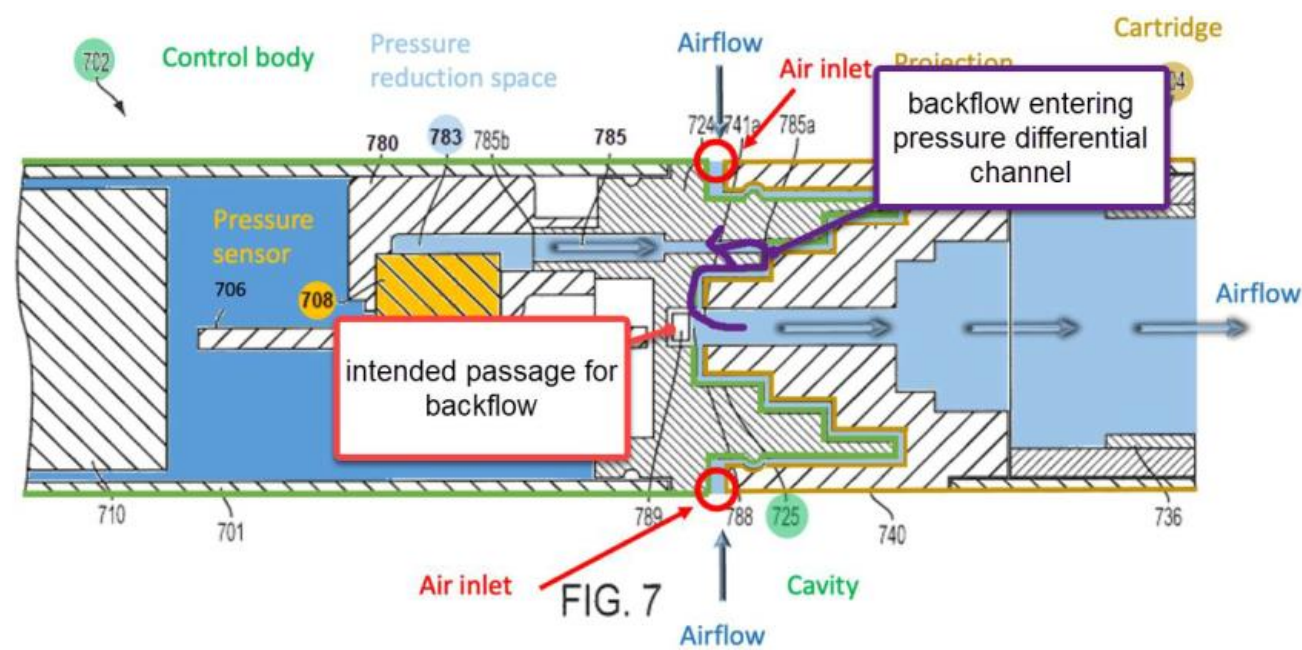
A. Well, I had made representation that Worm disclosed all of the elements in the claim to begin with. And I've also made the observation that obviousness in light of a person skill in the art and also with Levitz added to it; but Worm does disclose all of what I think is required for the claims.

Q. And I fully get that, but here we're not [talking] about Worm by itself, right? Here we're talking about why you would modify Worm in view of Levitz. And what you've identified is an alleged disadvantage described in Worm that Worm's disclosed embodiments already solves, right?

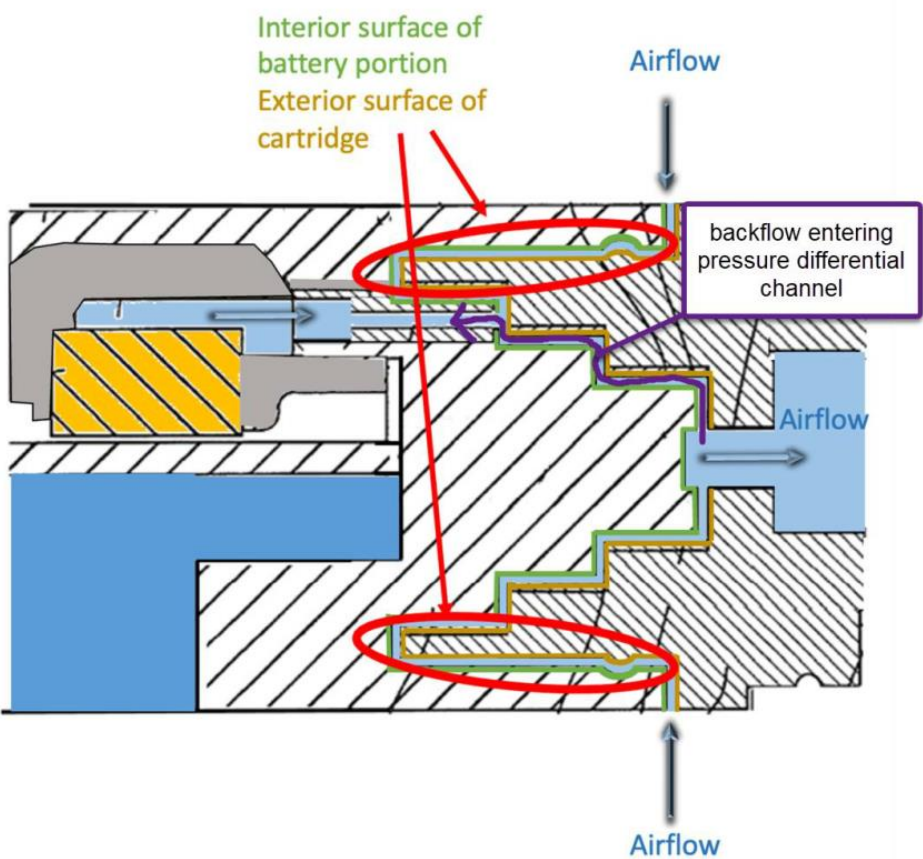
A. Certainly I have represented that Worm has already solved that, already has provided.”

Ground 3: “air flow path” – No Motivation to Combine

- Adding Levitz’s side inlets *exacerbates* backflow problems:



POR 17



POR 18

Ground 3: “air flow path” – No Motivation to Combine

- Adding Levitz’s side inlets **exacerbates** backflow problems:

“A. The vapor would flow backward, and then if the gap were large enough, it would flow up through the gap and out the air inlet. Then when the user would apply a vacuum to the device, the reverse would happen and the - it's a little hard to see but the vapor that's in that channel in front of the pressure channel, that's going to start to move and that's going to have momentum, and that momentum is going to carry it into the channel. ...

So as I was trying to describe, the fluid that's in the chamber to the right of where that green or that purple arrow is will start to move to the left and go into the pressure chamber.

Q. And, you know, if this device is oriented, you know, upside down –

A. Correct. With a liquid perspective, if it’s oriented that way, liquid would flow.”

Ex. 1040 (Collins Tr.) at 117:5-118:3; Sur-Reply 23

“Yet Petitioners’ proposed modifications to Worm has the same issue, specifically that the inhalation/backflow channel and pressure differential channel are the same path. This is especially the case if Petitioner propose creating a gap between Worm’s cartridge 704 and control body 702—as that would result in more backflow entering the pressure differential passage instead of Worm’s intended path via inlet aperture 789, which Mr. McAlexander acknowledges is a ‘separate port.’”

Ex. 2053 (Collins Decl.) at ¶77; POR 16

Ground 3: “air flow path” – No Motivation to Combine

- Petition: side inlets placement a mere “design choice.” Pet. 57-59.
- This is **incorrect**: Dr. Collins explained that it is not arbitrary and has a significant effect on user experience:

“In my opinion, the placement of air inlets is not an arbitrary design choice. Their placement, size, and shape will have an effect on draw resistance, which affects user experience, such as vapor and aerosol production, the size of the visible vapor cloud, and nicotine delivery. These considerations must be taken into account and carefully controlled, and thus the placement of the air inlets cannot be arbitrarily chosen. I note that neither Petitioners nor Mr. McAlexander have provided any evidence that, in view of the above considerations, a POSITA would have chosen the specific placement of the air inlets as proposed by Petitioners.”

Ex. 2053 (Collins Decl.) at ¶73; POR 12

Ground 3: “air flow path” – No Motivation to Combine

- Dr. Collins:

“In addition, it creates a pressure difference, an error between the pressure sensor and the vapor channel, the vapor vacuum, because there is a pressure drop, yet there is an air flow through that - through that portion of the channel. And that pressure drop is going to be dependent on the specifics of the geometry, which can change, and the flow rate. So it would be an unreliable way of actually monitoring the pressure in the chamber at 789. ...

[W]hat we’re trying to do is monitor the pressure at 783 so we want the pressure at 783 to mirror the pressure at 789. If there is a flow between where that -- basically where that purple line is, that creates a pressure drop and that pressure drop is dependent on the geometry, which can vary and is dependent on the flow rate.

So the difference between the pressure at 783 and the pressure that you want to monitor, which is the pressure at 789, is going to be significant if there is air flow through that channel. So a POSA would know you don't want air flow through that channel.”

Ex. 1040 (Collins Tr.) at 118:14-120:9; Sur-Reply 23

Ground 3: “air flow path” – No Motivation to Combine

- Petition argues a POSITA would include Levitz’s side inlets because the device would be easier to clean Pet. 59-60
- **Incorrect:** Dr. Collins explained that the user would still need to clean the air inlet aperture and channel 788.

“[T]he user would still need to clean air inlet apertures 789 and channel 788 that are depicted to be much larger. 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.”

Ex. 2053 (Collins Decl.) at ¶76; POR 14

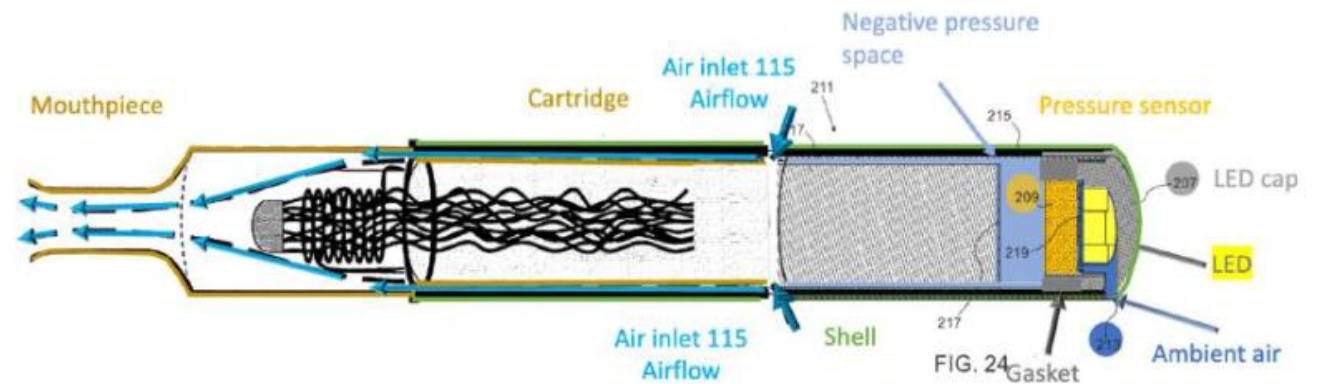
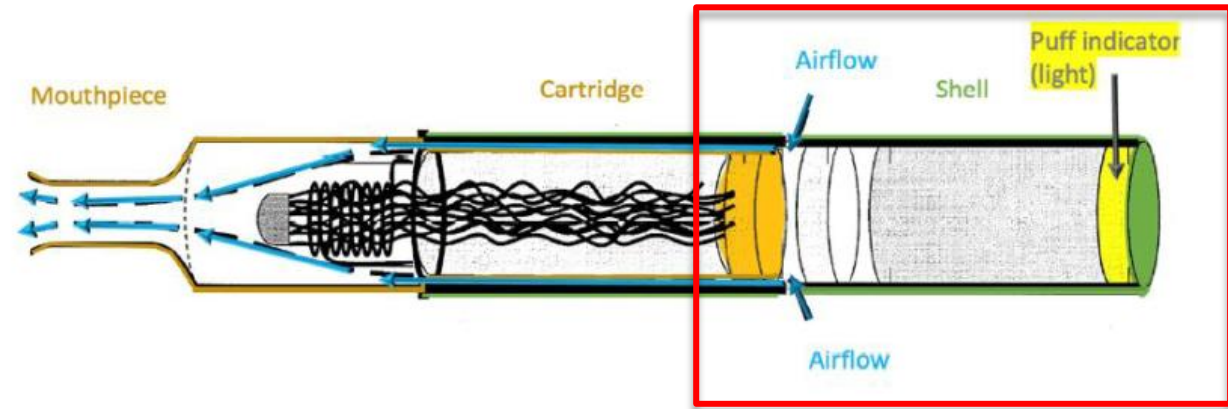
Ground 4: No Motivation to Combine Thorens and Weigensberg

Ground 4: No Motivation to Combine

- Petitioner proposes replacing Thorens' "puff detection system" with Weigensberg's differential pressure sensor
- *Petitioner does not provide sufficient reason for such significant modifications*
- *Petitioner's motivations do not apply to Thorens's air flow sensor*
 - Air flow sensor does not have issues with external pressure changes
 - Air flow sensor can be used to measure air flow rate
 - Petitioner's modification uses more space
- *Thorens's flow sensor is superior to a differential pressure sensor*
 - Differential pressure sensors do not work if an air inlet is blocked
 - Differential pressure sensors can be "tricked" if the user blows into the mouthpiece
 - Detecting negative pressure requires careful design and manufacturing

Ground 4: No Motivation to Combine

- The Petition modifies Thorens by replacing its “puff detection system” with Weigensberg’s pressure sensor and pressure chambers
- Thorens (annotated by Petitioner)
- Thorens + Weigensberg (annotated by Petitioner)



Modified Thorens

Ground 4: No Motivation to Combine

- Petitioner provides no explanation as to **why** a POSITA would have done so
- **Undisputed:** Thorens's "puff detection system" **already** detects inhalation:

"In this embodiment, when the puff detection system 107 senses the user taking a puff, the battery supplies a current pulse of a pre-determined time to the heating coil 209. The pre-determined time for the current pulse will depend on the amount of liquid required for a single puff, and the time taken for that amount of liquid to be vaporized."

Ex. 1016 (Thorens) at ¶46; POR 77

"We question whether Petitioner has provided sufficient evidence that, in view of the challenges and redundancies involved, a person of ordinary skill in the art would have had reason to replace the puff detection system of Thorens with the differential pressure sensor of Weigensberg as proposed. Stated differently, even if an ordinarily skilled artisan could have made the combination, we question whether Petitioner has sufficiently explained why an ordinary artisan would have been motivated to do so."

ID at 42

Ground 4: No Motivation to Combine

- The ID:

“We question whether Petitioner has provided sufficient evidence that, in view of the challenges and redundancies involved, a person of ordinary skill in the art would have had reason to replace the puff detection system of Thorens with the differential pressure sensor of Weigensberg as proposed. Stated differently, even if an ordinarily skilled artisan could have made the combination, we question whether Petitioner has sufficiently explained why an ordinary artisan would have been motivated to do so.”

ID at 42

Ground 4: No Motivation to Combine

- Petitioner: a POSITA would include Weigensberg's differential pressure sensor because it "better accommodate[s] external pressure changes" Pet. 68
- **Incorrect:** Thorens's air flow sensor does not have problems with external pressure changes

"However, this alleged advantage is merely a potential advantage over non-differential **pressure sensors**. And, even a non-differential pressure sensor can easily address this issue by establishing a running average baseline pressure with software. **Thorens uses an airflow sensor which does not have this high altitude issue.**"

Ex. 2053 (Collins Decl.) at ¶¶94; POR 81

Ground 4: No Motivation to Combine

- Petitioner: a POSITA would include Weigensberg's differential pressure sensor because it allows "changing heater parameters based on airflow rate" Pet. 68
- **incorrect:** Thorens's air flow sensor can already detect different air flow rates

"Thorens's sensor detects "air flow indicative of a user taking a puff," and therefore can already detect different airflow rates."

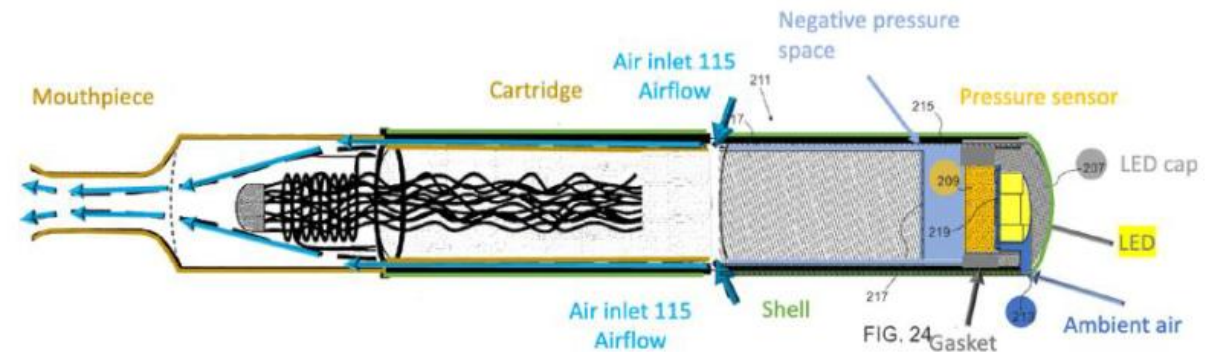
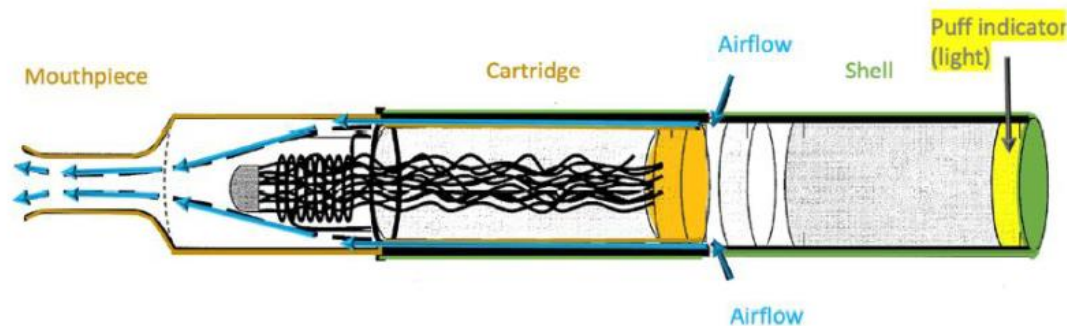
Ex. 2053 (Collins Decl.) at ¶¶95; POR 81

Ground 4: No Motivation to Combine

- Petitioner: a POSITA would include Weigensberg's differential pressure sensor because it saves space and allows "a larger battery" Pet. 68
- Incorrect:** The combination includes more components and passages and employs a **smaller** battery

"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. 2053 (Collins Decl.) at ¶96; POR 82



Modified Thorens

Ground 4: No Motivation to Combine

- A POSITA would **not** have used a differential pressure sensor in Thorens -- Differential pressure sensors can overheat if an air inlet is blocked:

“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. 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.

Ex. 2053 (Collins Decl.) at ¶84; POR 77

- Petitioner argues in Reply this temperature could be regulated. Reply 26.
 - But this requires adding a temperature sensor, increasing complexity

Ground 4: No Motivation to Combine

- A POSITA would **not** have used a differential pressure sensor in Thorens -- Differential pressure sensors can provide false readings:

“[S]ome differential pressure sensors can be tricked by blowing into the mouthpiece increasing the pressure in the device. When the pressure later drops, it is incorrectly detected as a puff.”

Ex. 2053 (Collins Decl.) at ¶84; POR 77

Ground 4: No Motivation to Combine

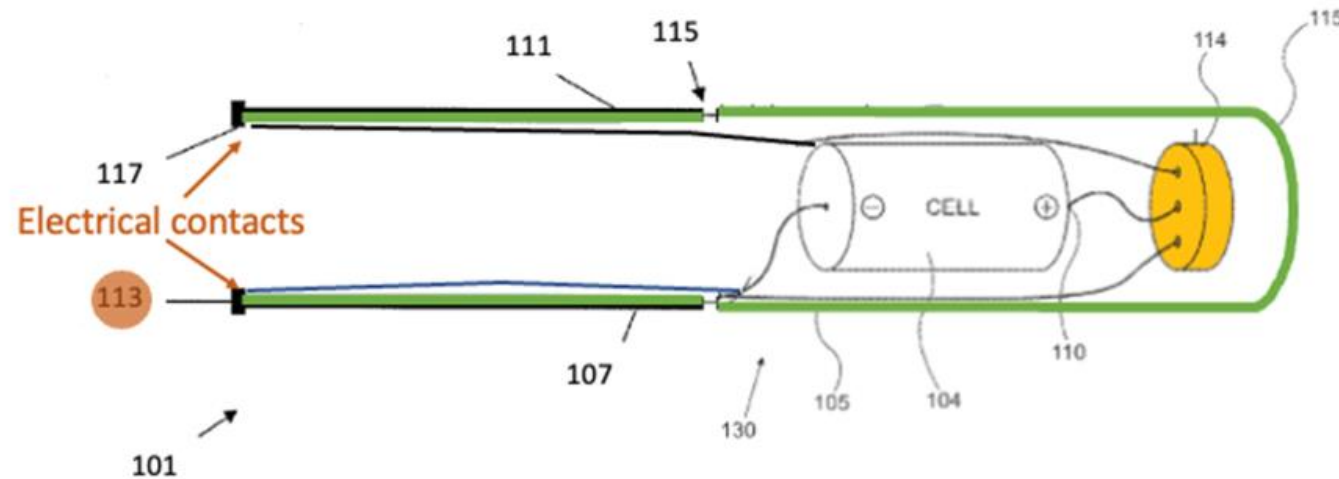
- A POSITA would **not** have used a differential pressure sensor in Thorens -- Differential pressure sensors require careful design and manufacturing:

“As I 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. Thorens, on the other hand, discloses a “puff detection system” through which the air passes. This allows for the direct measurement of airflow.”

Ex. 2053 (Collins Decl.) at ¶85; POR 78

Ground 4: No Motivation to Combine

- A POSITA would **not** have used a differential pressure sensor in Thorens -- Petitioner's proposed combination is complicated and requires exposed wiring and leads



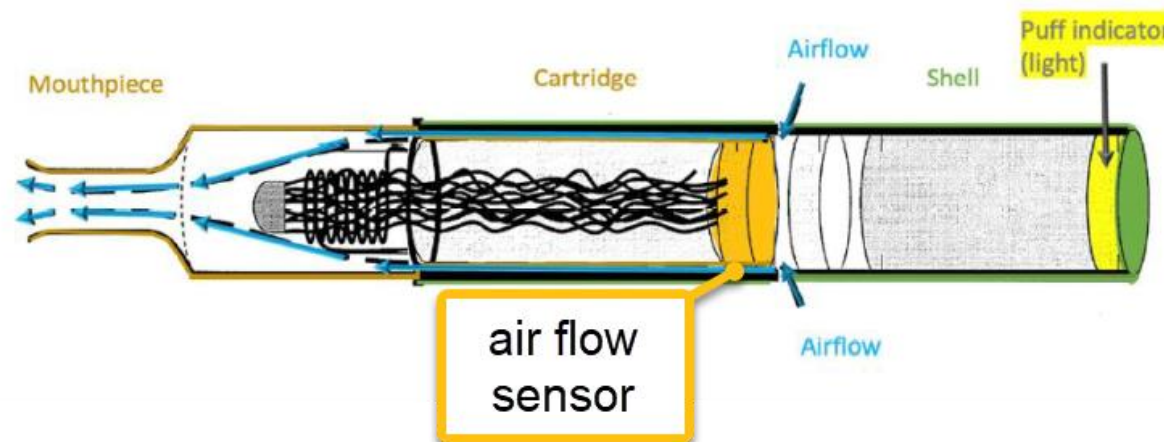
POR 69

Ground 4: No Motivation to Combine

- Petitioner argues that Thorens's air flow sensor "may be" a pressure sensor.
- Dr. Collins explained the difference between airflow sensors and pressure sensors:

"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. 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.

Ex. 2053 (Collins Decl.) at ¶84; POR 77



Grounds 5-8: No Motivation to Combine Lamb

Grounds 5-8: Lamb Does Not Disclose a Gasket

- Petitioner proposes combining Grounds 1-4 with Lamb's gasket
 - *Petitioner does not provide any motivation to include a gasket*
 - *Lamb does not disclose a gasket nor does it incorporate Newton766's gasket*

Grounds 5-8: Lamb Does Not Disclose a Gasket

- Petitioner's Motivation to Combine section does not mention anything about a gasket
- Panel agreed:

“Furthermore, Petitioner does not provide a reason to modify Worm or Weigensberg to include a gasket; Petitioner's motivation to combine arguments are directed to Lamb's sensor.¹¹ Therefore, we have doubt that Petitioner ultimately will establish that an ordinary artisan would have modified Worm and Weigensberg with Lamb's sensor and Newton766's gasket.”

ID at 47

Grounds 5-8: Lamb Does Not Disclose a Gasket

- Lamb does not disclose a gasket
- Lamb does not incorporate by reference Newton766's gasket

“Additional representative types of **components that yield visual cues or indicators** may be employed in the aerosol delivery device 100, such as LEDs and related components, vibratory elements and the like. Examples of **suitable LED components**, and the configurations and uses thereof, are described in U.S. Pat. No. 5,154,192 to Sprinkel et al., **U.S. Pat. No. 8,499,766 to Newton**, U.S. Pat. No. 8,539,959 to Scatterday, and U.S. patent application Ser. No. 14/173,266 to Sears et al., filed Feb. 5, 2014, all of which are incorporated herein by reference in their entireties.”

Ex. 1005 (Lamb) at ¶41; POR 85



“To incorporate material by reference, the host document must identify with **detailed particularity** what specific material it incorporates ...

Advanced Display Systems, Inc. v. Kent State University, 212 F.3d 1272, 1282 (Fed. Cir. 2000); POR 85

Secondary Considerations of Non-Obviousness

Secondary Considerations

- Substantial evidence of secondary considerations of non-obviousness
 - *JUUL System had long-felt need, unexpected results, commercial success, industry praise, copying*
 - *JUUL System is coextensive with the claims and thus has a presumption of nexus*
 - JUUL System has pressure sensor with both claimed sides
 - JUUL System does not have critical, unclaimed features

Secondary Considerations: Long-felt Need

- Long-felt need for cigarette replacement:



Combustible tobacco products, primarily cigarettes, are the single greatest cause of cancer and kill about 7 million people worldwide each year. In the United States, 98% of all tobacco-related deaths are caused by cigarette smoking. The U.S. tobacco landscape has changed rapidly in recent years, with millions of consumers now using electronic nicotine delivery systems (ENDS), the most prominent of which are electronic cigarettes (e-cigarettes). E-cigarettes contain heated nicotine extracted from tobacco, as well as a variety of flavorings and other additives.

Ex. 2009, 1; POR 42



Leading cause of death, illness and impoverishment

The tobacco epidemic is one of the biggest public health threats the world has ever faced, killing over 8 million people a year around the world. More than 7 million of those deaths are the result of direct tobacco use while around 1.3 million are the result of non-smokers being exposed to second-hand smoke (4).

Ex. 2010; POR 42

Secondary Considerations: Long-felt Need

- Early ENDS devices mimicked cigarette look-and-feel (“cig-a-likes”), but were not popular

613. Gardner agreed with Magness’s assessment: None of the products that Altria had on the market—not MarkTen cig-a-like, not Bold, not Elite—could provide the satisfaction necessary to convert smokers. (Gardner (Altria) Tr. 2590).

Ex. 2024, ¶613; POR 44

bought Lorillard and sold blu to the British multinational Imperial Brands.) But the more advanced vapes were either unattractively large or required users to monitor finicky temperature settings, coils, and wicks. Bowen and Monsees gave each Juul its own circuit board and firmware, removing the need for technical know-how and insuring better control, and managed to fit it all into a small device. After a series of focus groups with longtime smokers, they developed a flavor strategy: a tobacco profile, a mint profile, a fruit profile, a dessert profile. For the design, they avoided the roundness of a cigarette, and the glowing tip, because they wanted people who used the Juul to feel as if they were doing something new.

Ex. 2019, 4; POR 45

- JUUL’s success from departing from industry design norms and providing sufficient vapor production was unexpected

Secondary Considerations: Commercial Success

- Commercial success for JUUL System:

WATCH LIVE

HEALTH AND SCIENCE

Popular e-cigarette Juul's sales have surged almost 800 percent over the past year

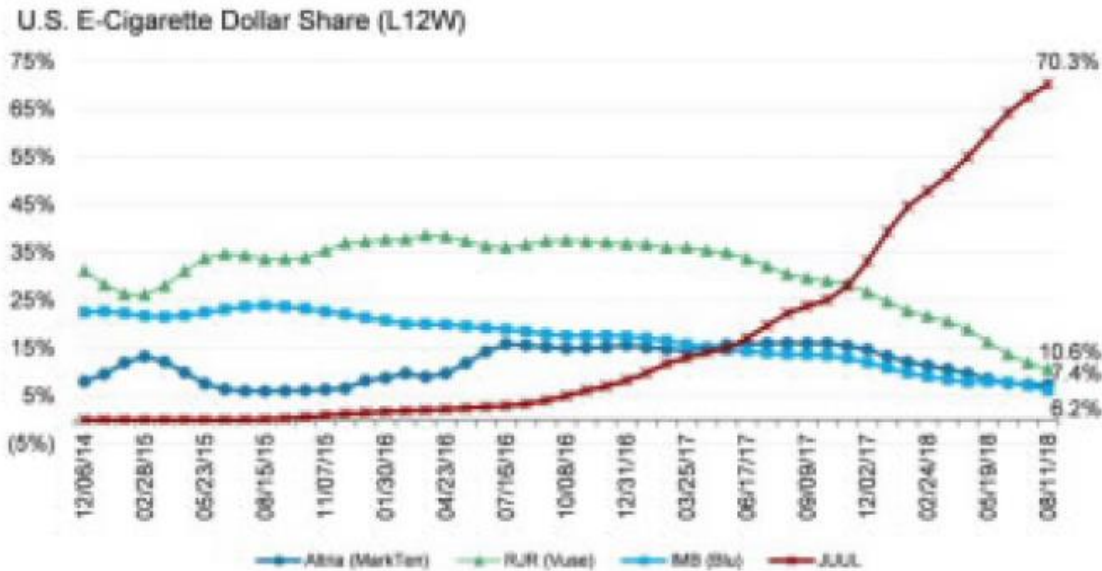
PUBLISHED MON, JUL 2 2018•2:33 PM EDT UPDATED TUE, SEP 11 2018•2:24 PM EDT

Ex. 2028, 1; POR 49

- JUUL's Rapid Ascent Begg for Competition**

Ex. 2032, 1; POR 49

Exhibit 4: JUUL holds 70% share of the e-cig category



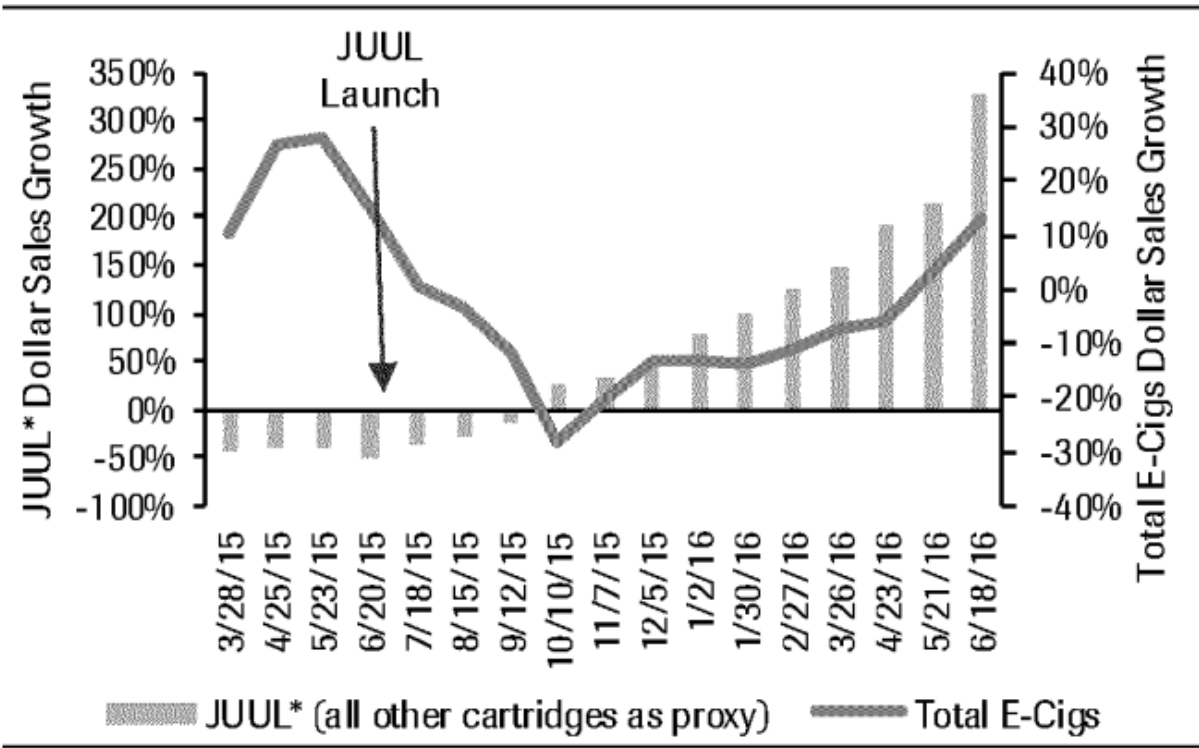
Source: Nielsen XAOC + C, Morgan Stanley Research, (data as of 08/11/18)

Ex. 2037, 3; POR 49

Secondary Considerations: Commercial Success

- JUUL System revitalized growth in the entire ENDS market:

Figure 8 JUUL Growth Has Accelerated Every Quarter in 2016



Source: The Nielsen Company and Cowen and Company

Ex. 2035, 5; POR 50

Secondary Considerations: Industry Praise

- Industry praise for JUUL System:

Since launching in 2015, the Juul has been a runaway success. Vapers appreciate the flat rectangular product design, discreet size and powerful pre-filled nicotine pods. Sucking on a Juul creates a similar sensation to smoking a cigarette.

Ex. 2029, 2; POR 48

period. A huge part of JUUL's cachet appears to be its pleasing aesthetics, ease of use & nicotine salt e-liquid technology. JUUL devices have the long, lean, lightweight build of a portable charger (i.e., it's discrete), as well as ease of use (i.e., easy to charge) and adventurous flavors like "Cool Cucumber" or "Crème Brûlée". By comparison, *myblu* is similar in looks/style/flavor excitement, but half the nicotine content (each JUUL pod is 5% nicotine by weight which equates to 1 pack of combust. cigs or 200 puffs vs *myblu* at 2.4% at highest titration).

Ex. 2032, 1; POR 49

Secondary Considerations: Industry Praise

- Industry Praise from Petitioner's RPI in this IPR:

219. But, within 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.” (PX2534 (JLI) at 006; *see also* Begley (Altria)

222. JUUL also has a “simple, intuitive, [and] easy-to-use” product design, (Begley (Altria) Tr. 1095), including “a pod that clicks into a battery.” (Crozier (Sheetz) Tr. 1488). These are all features that contributed to JUUL’s success. (Begley (Altria) Tr. 1094-95; Crozier (Sheetz) Tr. 1555-56; *see also* PX2158 (JLI) at 047 (“[P]roduct design also has a material impact on consumer acceptance. Convenience, form factor, and ease-of-use were all hurdles that limited first generation [e-vapor] adoption.”)).

Secondary Considerations: Copying

- Competitors copied JUUL's design, moving away from cig-a-like designs:



Many other new products appear to mimic the sleek design of Juul, including PHIX Vapor's PHIX, KandyPens' Rubi, Juno Vapor's Juno, Smoketech's Infinix and FIT, Coilart's UME, Vapor Storm's Stalker, Bo Vaping's Bo One, Cig20's STIK, XFire Vapor's XFire, Kilo Eliquids' KILO 1K, and Vapeccino's MATE1.¹⁸ Since these products appear to be imitating the design of Juul, a product that achieved popularity in 2017 and 2018, it is most unlikely that they were on the market on August 8, 2016.

Ex. 2043, 4; POR 51

"Ever since the Juul device burst onto the vape market, companies have been churning out Juul-inspired vape systems for nic salts and Juul-compatible pods to keep up with the trend."

Ex. 2044; POR 51

Secondary Considerations: JUUL System Practices ‘123 Patent

- The JUUL System practices the ‘123 patent:

Figure 1 JUUL Device with JUULpod Inserted



Ex. 2003, 1

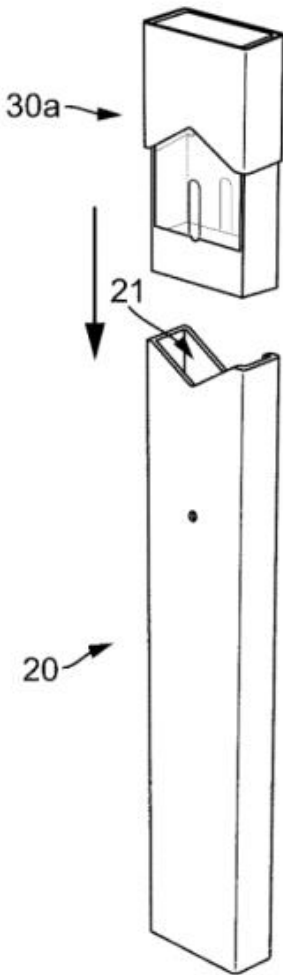
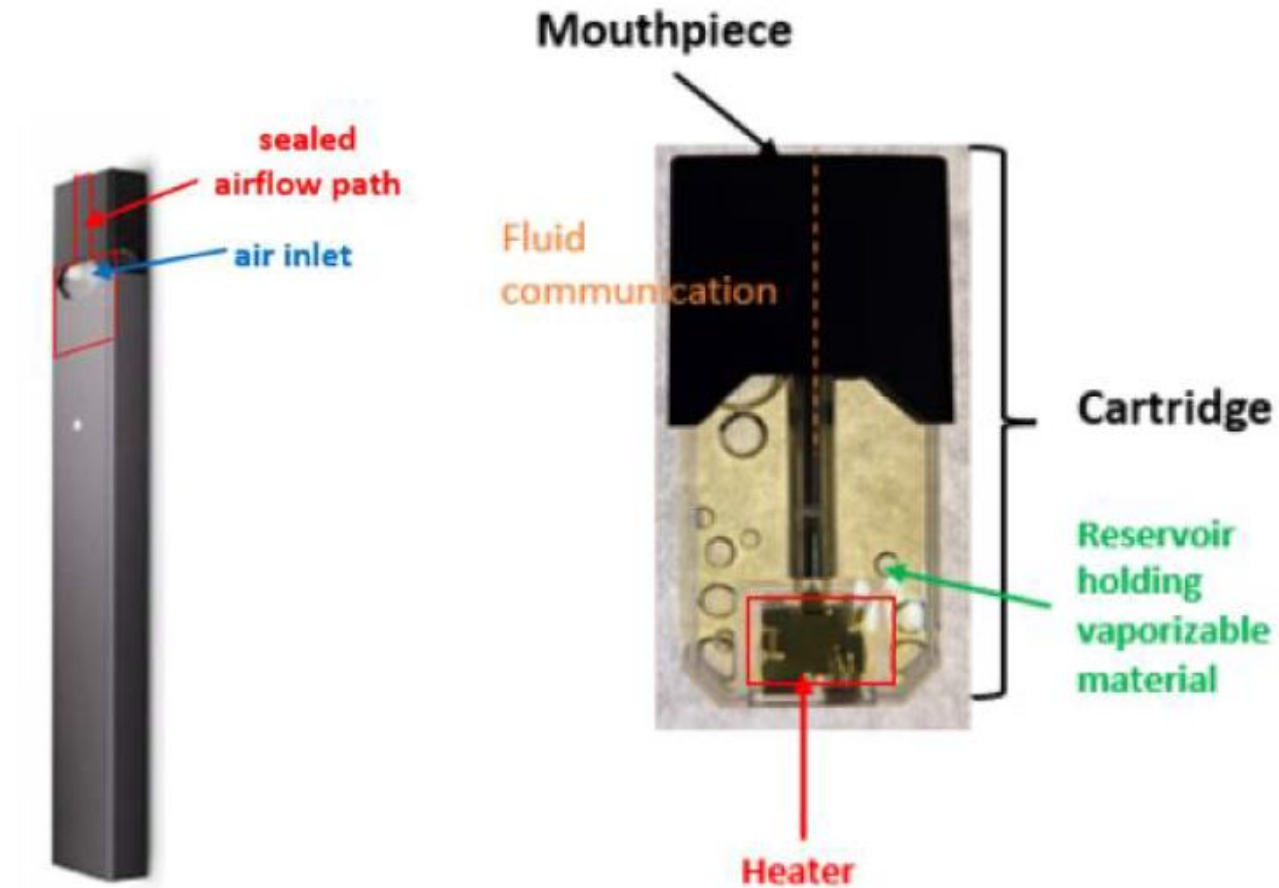


FIG. 12

Ex. 1001, Fig. 12; POR 30

Secondary Considerations: JUUL System Practices '123 Patent

- The JUUL System practices the '123 patent air flow path:



Ex. 2004, 2050; POR 36-37

Secondary Considerations: JUUL System Practices ‘123 Patent

- Presumption of nexus when a product is coextensive with the claims:



“We presume 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); POR 21

- No presumption if product has “critical” unclaimed features:



“A patent claim is not coextensive with a product that includes a ‘critical’ unclaimed feature that is claimed by a different patent and that materially impacts the product's functionality”

Fox Factory, Inc. v. SRAM, LLC, 944 F.3d 1366, 1378 (Fed. Cir. 2019); Reply 33

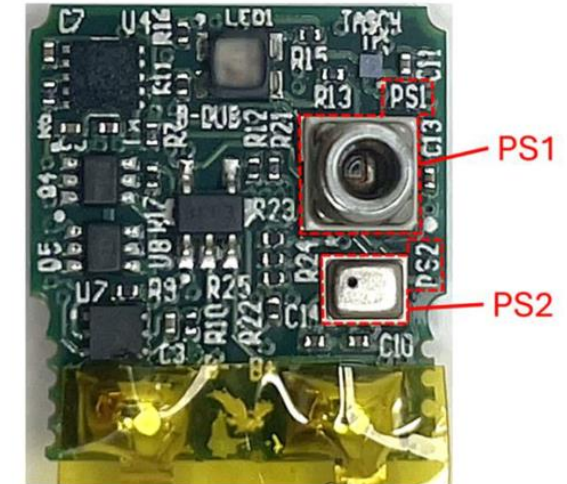
Secondary Considerations: JUUL System Practices '123 Patent

- JUUL System's employs two pressure sensors that are used as a single sensor:

Air enters via the device and pod interface and is drawn through the device in communication with the pressure sensors and then through the JUULpod.

There are two pressure sensors, one which measures ambient and the other which measures airpath pressure. When the microcontroller interprets readings from the two sensors as a differential pressure profile resembling a puff, it signals the JUUL Device to deliver regulated power to the heating coil.

Ex. 2003 (JUUL FDA Application) at 45; Reply 30



Reply 30

- Petitioner argues that the JUUL System does not have a gasket “around” the pressure sensor, since it only covers one of the sensor components.
- This ignores the claim language

Mr. McAlexander Lacks Experience With Air Flow Design

Mr. McAlexander Lacks Air Flow Experience

- Mr. McAlexander admitted he has never worked with ENDS devices outside litigation consulting:

“Q. Other than your work as a litigation consultant, you have not done any work on vaporizer devices or ENDS products, right?”

A. Not on those particular products, no.”

Ex. 2052 (McAlexander ITC Tr.) at 13:5-10; POR 3

- Mr. McAlexander admitted his experience with designing air flow paths is limited:

“Q. Have you ever designed any of the air flow pathways in a device that results in that air flow being delivered to the MEMS sensors that you're talking about?”

A. Not in the -- not in the air flow or channel area that would -- in terms of the air path, no. My development work was with regard to the sensor itself.”

Ex. 2052 (McAlexander ITC Tr.) at 18:18-25; POR 3

- Prior to this case, Mr. McAlexander had never testified about air flow paths or air flow mechanics in ENDS devices