

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NJOY, INC., CB DISTRIBUTORS, INC., DR DISTRIBUTORS, LLC,
FIN BRANDING GROUP, LLC, ELECTRONIC CIGARETTES
INTERNATIONAL GROUP, LTD. F/K/A VICTORY ELECTRONIC
CIGARETTES CORPORATION, AND
LOGIC TECHNOLOGY DEVELOPMENT LLC,
Petitioners,

v.

FONTEM HOLDINGS 1 B.V.,
Patent Owner.

Case IPR2015-01299
Patent 8,910,641 B2

Before JOSIAH C. COCKS, DONNA M. PRAISS, and
JO-ANNE M. KOKOSKI, *Administrative Patent Judges*.

KOKOSKI, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
37 C.F.R. § 42.108

I. INTRODUCTION

NJOY, Inc., CB Distributors, Inc., DR Distributors, LLC, FIN Branding Group, LLC, Electronic Cigarettes International Group, Ltd. f/k/a Victory Electronic Cigarettes Corporation, and Logic Technology Development LLC (collectively, “Petitioner”) filed a Petition (“Pet.”) to institute an *inter partes* review of claims 1–11, 17, 19, and 20 of U.S. Patent No. 8,910,641 B2 (“the ’641 patent,” Ex. 1001). Paper 1. Fontem Holdings 1 B.V. (“Patent Owner”) filed a Preliminary Response (“Prelim. Resp.”). Paper 6. We have jurisdiction under 35 U.S.C. § 314.

Upon consideration of the Petition, Preliminary Response, and the evidence of record, we determine that Petitioner has not established a reasonable likelihood of prevailing with respect to the unpatentability of claims 1–11, 17, 19, and 20 of the ’641 patent. Accordingly, we deny the Petition and do not institute an *inter partes* review.

A. *Related Proceedings*

Petitioner identifies multiple cases pending in the Central District of California that could be affected by this proceeding. Pet. 2–3. Petitioner also identifies ten related *inter partes* review proceedings. *Id.* at 3. Patent Owner additionally identifies four petitions for *inter partes* review “filed by JT International S.A. prior to Logic Technology Development LLC’s acquisition.” Paper 5, 1.

B. *The ’641 Patent*

The ’641 patent, titled “Electronic Cigarette,” is directed to an electronic cigarette that includes a shell, a cell, a control circuit, a nicotine solution, and an electro-thermal vaporization nozzle installed at the air suction end of the shell. Ex. 1001, Abs. According to the ’641 patent, the

control circuit provides starting current to an electric heater arranged within the electro-thermal vaporization nozzle, and the cell that provides the power to the control circuit can be a disposable or rechargeable battery. *Id.* at 1:65–2:5. The high temperature in the electro-vaporization nozzle causes nicotine liquid to rapidly vaporize to form a puff of smoke. *Id.* at 2:2–4.

Figure 1 of the '641 patent is reproduced below:

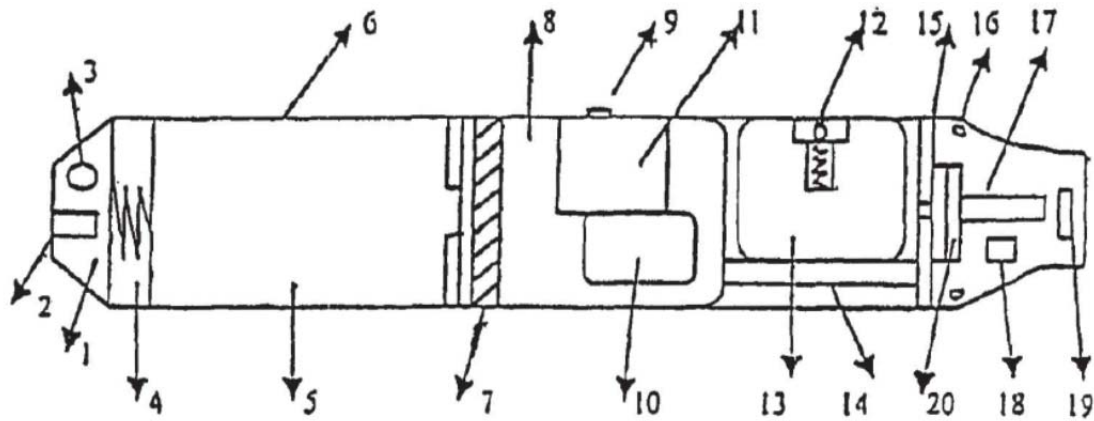


Figure 1 is a schematic diagram of an electronic cigarette. *Id.* at 2:13–14. Resistance sensor 19 activates control circuit board 8 when a smoker puts the cigarette holder in his/her mouth, causing circuit board 8 to output two driving voltages, one to supply power to the electric heating element of electro-thermal vaporization nozzle 17, and the other to activate micro pump 11. *Id.* at 3:48–53. Nicotine solution is then pumped to electro-thermal vaporization nozzle 17 by nicotine storage container 13, vaporized into high temperature vapor on the heating element of electro-thermal vaporization nozzle 17, and ejected from the opening end. *Id.* at 3:53–58. In the air, the ejected vapor is expanded and condensed into micro aerosol droplets. *Id.* at 3:58–59. The electronic cigarette also comprises charger 1, charging jack 2,

spring 4, shell 6, threads 7, switch 9, passage tube 14, and baffle plate 15.
Id. at 4:26–28.

The Specification states that the electro-thermal vaporization nozzle is a small tube with an internal diameter of 0.05–2 mm that can be straight or spiral. *Id.* at 3:1–2, 3:9–11. The electric heating element within the electro-thermal vaporization nozzle can be made of wires, and can be in the shape of a straight line, single spiral, double spiral, cluster, or spiral cluster. *Id.* at 3:14–19.

C. Illustrative Claims

Petitioner challenges claims 1–11, 17, 19, and 20 of the '641 patent. Claims 1 and 17 are independent, and read as follows:

1. An electronic cigarette, comprising:
 - a housing having an inlet and an outlet;
 - a battery and an atomizer in the housing, with the atomizer including a tube having a metal wire heater coil within the tube electrically linked to the battery;
 - a liquid source in the housing and outside of the tube;
 - with liquid in the liquid source capable of moving from the liquid source into the tube and contacting the wire heater coil to create vapor.

Ex. 1001, 6:36–44.

17. An electronic cigarette comprising:
 - a housing, an air inlet leading into the housing, and an air outlet leading out of the housing;
 - a battery, a control circuit, a sensor, and a vaporization nozzle in the housing, with the control circuit electrically connected to the battery and to the sensor;
 - the vaporization nozzle including a coil heating element within a tube and with the coil heating element electrically connected to the control circuit; and

a solution storage in the housing outside of the tube, wherein solution in the solution storage is capable of moving from the solution storage into the tube.

Id. at 8:1–12.

D. The Prior Art

Petitioner relies on the following prior art references:

Reference	Description	Date	Exhibit No.
Gilbert	US 3,200,819	Aug. 17, 1965	1005
Haglund	US 4,207,457	June 10, 1980	1007
Ingebrethsen	US 5,388,574	Feb. 14, 1995	1006
Higgins	US 5,666,977	Sep. 16, 1997	1004
Takeuchi	US 6,155,268	Dec. 5, 2000	1003
Susa	EP 0 845 220 A1	June 3, 1998	1010

E. The Asserted Grounds of Unpatentability

Petitioner challenges the patentability of claims 1–11, 17, 19, and 20 of the '641 patent on the following grounds:

References	Basis	Claims Challenged
Higgins, Ingebrethsen, and Haglund	§ 103	1–3, 6, 7, 9, 10, 17, 20
Higgins, Ingebrethsen, Haglund, and Gilbert	§ 103	4, 5
Higgins, Ingebrethsen, Haglund, and Susa	§ 103	8, 9, 11, 19
Takeuchi and Haglund	§ 103	1–3, 6–10, 17, 19, 20
Takeuchi, Haglund, and Gilbert	§ 103	4, 5
Takeuchi, Haglund, and Susa	§ 103	9, 11

II. ANALYSIS

A. *Claim Interpretation*

We interpret claims of an unexpired patent using the “broadest reasonable construction in light of the specification of the patent in which [the claims] appear[.]” 37 C.F.R. § 42.100(b). For purposes of this Decision, based on the record before us, we determine that none of the claim terms requires an explicit construction.

B. *Obviousness over Higgins, Ingebrethsen, and Haglund*

Petitioner contends that the subject matter of claims 1–3, 6, 7, 9, 10, 17, and 20 would have been obvious under 35 U.S.C. § 103 over the combination of Higgins, Ingebrethsen, and Haglund. Pet. 16–33. Petitioner provides claim charts and relies on the Declaration of Samir Nayfeh, Ph.D. (“the Nayfeh Declaration,” Ex. 1002) in support of its contentions. *Id.*

1. *Overview of Higgins*

Higgins is directed to an electrical smoking article with a liquid tobacco flavor medium delivery system that transfers the liquid from a cartridge to a heater, generates a predetermined amount of tobacco flavor, and delivers it to a smoker. Ex. 1004, 3:21–26. Higgins Figures 1 and 2 are reproduced below:

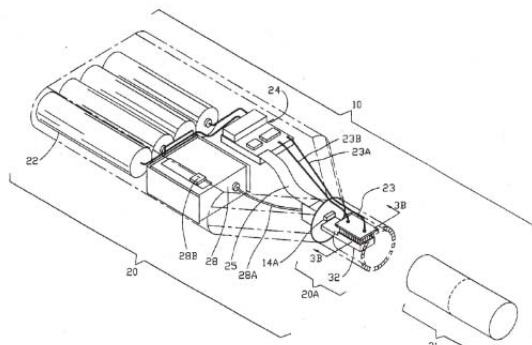
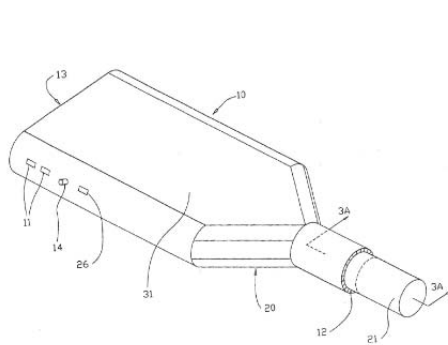


Figure 1 is a perspective view of a preferred embodiment of the Higgins electrical smoking article, and Figure 2 is a partially-fragmented exploded perspective view of the electrical smoking article shown in Figure 1. *Id.* at 2:57–61. Smoking article 10 includes permanent portion 20 and disposable filter insert 21 within permanent cavity 30 at the mouth end of permanent portion 20. *Id.* at 4:49–52. Within permanent portion 20 are liquid jet delivery system 32, power source 22, heater 23, control circuit 24, and liquid medium cartridge 28. *Id.* at 4:52–54. Power source 22 can be a replaceable or rechargeable battery, a capacitor, or both, and provides power for heater 23 and liquid jet delivery system 32. *Id.* at 4:55–62, 5:7–9.

Liquid jet delivery system 32, which is controlled by control circuit 24, includes one or more nozzles 33 and is connected to liquid medium cartridge 28 by delivery tube 28A. *Id.* at 5:8–11. Nozzles 33 spray a predetermined amount of liquid tobacco flavor medium toward heater 23, which heats the droplets to generate the aerosol that is drawn through disposable filter insert 21 and delivered to the smoker. *Id.* at 5:12–17.

2. *Overview of Ingebrethsen*

Ingebrethsen is directed to aerosol delivery articles that are capable of providing relatively small aerosol particles while subjecting the material to be aerosolized to relatively low temperatures. Ex. 1006, 1:5–9. Figure 1 of Ingebrethsen is reproduced below:

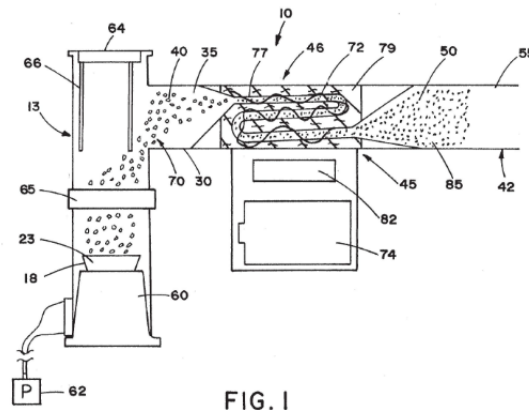


FIG. 1

Figure 1 is a partial sectional view of an Ingebrethsen aerosol delivery article. *Id.* at 2:60–61. Aerosol delivery article 10 comprises aerosol generator 13, reservoir 18, aerosol forming material 23, enclosure member 30, passageway 35, mouth end 42, heating unit 45, heating region 46, and delivery portion 55. *Id.* at 2:65–3:9.

Aerosol generator 13 produces first aerosol 40 using aerosol forming material 23 from reservoir 18. *Id.* at 3:10–12. First aerosol 40 exits aerosol generator 13, and passes through passageway 35 to get to heating unit 45. *Id.* at 3:34–35, 48–51. In heating region 46, heating unit 45 heats first aerosol 40 to form a second aerosol. *Id.* at 4:10–12. Heating unit 45 generates heat using resistance heating element 72 and electrical power source 74, which can be a battery. *Id.* at 4:21–25. Resistance heating element 72 is provided by winding resistance heating wire 72 around a coiled length of metal tubing 77. *Id.* at 4:37–41. Insulating material 79 can be positioned within enclosure member 30, such that it surrounds metal tubing 77. *Id.* at 4:55–59.

According to the Specification, the aerosol forming material is a multi-component material that includes at least one active ingredient and at least one other ingredient. *Id.* at 6:28–30. The active ingredient can include

a flavoring agent to provide flavor (such as tobacco, fruit, or spice) to the aerosol. *Id.* at 6:31–33.

3. *Overview of Haglund*

Haglund is directed to a porcupine wire coil positioned in a tube with an electrically-insulating interior that, when energized, can heat fluid flowing through the tube. Ex. 1007, Abs. Haglund describes stretching axially “a porcupine coil of electrical resistance wire characteristically formed by a substantially helical series of substantially flat convolutions having looped ends or peaks” such that “the convolutions are spaced apart from each other at least enough to prevent short-circuiting between the convolutions.” *Id.* at 1:47–53. The peaks of the convolutions of the coil are embedded in the electrically-insulating interior of a tube “to anchor each convolution against movement individually, leaving the balance of each convolution entirely exposed inside of the tube so that a high heat exchange efficiency can be obtained when fluid is flowed through the tube.” *Id.* at 1:53–61. Haglund states that “[t]he fluid must flow through the crisscrossing maze of the flat convolution legs so as to produce turbulent flow conditions.” *Id.* at 1:61–63. Haglund further states that it is “preferred to use a tube made from felted ceramic fibers providing for structural rigidity while being deformable or compressible under pressure applied at any localized area.” *Id.* at 2:3–6.

4. *Discussion*

Petitioner contends that “Higgins describes a battery-operated cigarette that uses a heater coil to vaporize liquid” and “Ingebrethsen and Haglund, collectively, teach techniques to efficiently heat liquid.” Pet. 16. Petitioner contends that a person having ordinary skill in the art would have

applied the techniques taught in Ingebrethsen and Haglund “to surround the coil of Higgins with an insulative tube, to contain the heat and liquid in the same volume so that heat could be more efficiently transferred to the liquid.” *Id.* at 16–17 (citing Ex. 1002 ¶¶ 61–69). According to Petitioner, the advantages of doing so include a longer battery life and faster response time of the electronic cigarette. *Id.* at 17.

Patent Owner argues that “[o]ne skilled in the art would not have replaced Higgins’ system to vaporize liquid droplets, with Haglund’s system to heat fluid flowing through a tube.” Prelim. Resp. 20. Patent Owner argues that liquid does not flow to the heater in Higgins; instead, “small droplets of liquid sufficient for a single puff [are] ejected to a spaced-apart heater,” with 1-2 mg aerosol generating a 2-second, 35 ml puff (about 1-2 ml volume of liquid). *Id.* at 18–19. Patent Owner argues that “Haglund discloses that the ‘fluid must flow through the crisscrossing maze of the flat convolution legs to produce turbulent flow conditions,’” and that “[t]he scale of Haglund is significantly larger than Higgins, involving pipes up to about 6 inches in diameter.” *Id.* at 19–20 (citing Ex. 1007, 1:61–66).

Patent Owner further argues that “Ingebrethsen discloses that the heating element 72 is outside the metal tubing 77, a serpentine tube of 10–30 cm in length through which the aerosol flows,” and that insulating material 79 that surrounds metal tubing 77 is there to ensure that the heat generated by heating element 72 is efficiently used to heat the aerosol by “direct[ing] heat toward the tubing and not away from it.” *Id.* at 23–24. According to Patent Owner, “Ingebrethsen expressly criticizes systems that vaporize a liquid by directly contacting the liquid with a heating wire” and therefore

“teaches away from the proposed combination with Higgins and Haglund.” *Id.* at 24–25.

Patent Owner argues that “Higgins also teaches against combination with Ingebrethsen and Haglund for several reasons,” including that “Higgins describes condensation of aerosol as a problem as it generates off-tastes,” and “[a] tube of fiber insulation surrounding the Higgins heater 123 would provide a vast increase in surfaces for condensation.” *Id.* at 25. Patent Owner also argues that in the embodiments described in Higgins, air flows from the air channels over the surface of the heater, directly exposing the heater to both tobacco liquid droplets and flowing air, but in Petitioner’s “proposed modification of Higgins, only liquid contacts the heater” and “vapor and air do not mix within the device.” *Id.* at 26. Therefore, Patent Owner argues, Petitioner’s proposed “modification changes the principal [*sic*] of operation of Higgins” and “reflects a 20/20 hindsight analysis.” *Id.*

A showing of obviousness must be supported by an articulated reasoning with rational underpinning to support a motivation to combine the prior art teachings. *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 418 (2007) (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.”)). Petitioner asserts that a person having ordinary skill in the art, considering together the teachings of Higgins, Ingebrethsen, and Haglund, “would have had reason to surround the coil of Higgins with a tube made of a fiber material, to efficiently transfer sufficient heat from the coil to the liquid tobacco flavor medium to cause a vapor (and ultimately an aerosol) to form.” Pet. 23.

Petitioner, however, does not provide sufficient explanation as to why a person having ordinary skill in the art would have wanted to provide more efficient heat transfer in the Higgins electronic smoking article. Petitioner does not direct us to, nor do we discern, statements in Higgins with respect to the efficiency—or inefficiency—of heating within the described article.

Petitioner and Dr. Nayfeh assert, for example, that a person having ordinary skill in the art would have used Ingebrethsen’s insulating material around the coil in Higgins “to constrain the heat from the coil in the same space where the liquid was supplied to ensure efficient heat transfer from the coil to the substance being heated.” Pet. 21 (citing Ex. 1002 ¶ 65). This, according to Petitioner and Dr. Nayfeh, would allow longer battery life, “which Higgins acknowledges as a concern by seeking to avoid designs that ‘unnecessarily increase the power consumption of the article.’” *Id.* at 21–22 (citing Ex. 1004, 1:62–65). Higgins, however, is not concerned with inefficient heat transfer with respect to power consumption; instead, Higgins is concerned with using a greater volume of tobacco flavor generating material than is heated by the heater because “such excess tobacco flavor generating material may serve as a heat sink which may unnecessarily increase the power consumption of the article.” Ex. 1004, 1:59–65.

Petitioner and Dr. Nayfeh then assert that Haglund demonstrates how to apply the teachings in Ingebrethsen to the Higgins structure, while “maintaining the heater configuration taught in Higgins, which allows, during operation, liquid tobacco flavor medium to come into contact with the wire heating coil to produce an aerosol.” Pet. 22–23; *see also* Ex. 1002 ¶¶ 66–69. Dr. Nayfeh further testifies:

A POSA [person having ordinary skill in the art] would have identified a tube that efficiently heats liquid as a[n] important

component of an electronic cigarette. Having identified such a tube as an important component, a POSA would naturally seek out references that teach how best to implement such a tube. Haglund is representative of what a POSA would have known about designing a device that efficiently transfers heat to a liquid, which should happen in a well-designed battery-operated electronic cigarette. A POSA would have looked to a reference such as Haglund for guidance in implementing the heater in an electronic cigarette with a liquid flavorant that is to be efficiently heated.

Ex. 1002 ¶ 35. Neither Petitioner nor Dr. Nayfeh explain adequately why a person having ordinary skill in the art would look to Haglund, which is concerned with providing a stable arrangement of a porcupine coil within a tube that maximizes the wire surface area exposed to high-velocity fluid flow through the tube (*see* Ex. 1007, 1:27–44), for guidance in improving heating efficiency in an electronic cigarette such as the one described in Higgins, where “the total amount of liquid delivered to the heater, per puff, is in the range from about 1 mg to about 10 mg, to provide a heated condensation aerosol having a mass in the range from about 0.05 mg to about 3.5 mg, as in conventional cigarettes” (Ex. 1004, 6:13–17). Simply stating that Haglund represents the knowledge of a person having ordinary skill in the art with respect to designing a device that efficiently transfers heat to a liquid, without any objective support, is insufficient.

Consequently, we are not persuaded that the Petition establishes why a person having ordinary skill in the art would attempt to improve Higgins by looking at Ingebrethsen and Haglund. Petitioner and Dr. Nayfeh contend that each element of the ’641 patent was known in the prior art, but an articulated reasoning of why a person having ordinary skill in the art would have combined the elements to achieve the claimed invention is missing.

Without such articulated reasoning, Petitioner's contentions are insufficient to establish that the claims of the '641 patent would have been obvious based on the combination of Higgins, Ingebrethsen, and Haglund. *See, Cheese Sys. Inc. v. Tetra Pak Cheese and Powder Sys., Inc.*, 725 F.3d 1341, 1352 (Fed. Cir. 2013) ("Obviousness cannot be based on the hindsight combination of components selectively culled from the prior art to fit the parameters of the patented invention." (internal quotation marks omitted)). As explained in *KSR*, "a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art." *KSR*, 550 U.S. at 418.

For these reasons, Petitioner has not established a reasonable likelihood that it would prevail on the ground that claims 1–3, 6, 7, 9, 10, 17, and 20 would have been obvious under 35 U.S.C. § 103 over the combination of Higgins, Ingebrethsen, and Haglund.

C. Obviousness over Higgins, Ingebrethsen, Haglund, and Gilbert or Susa

Petitioner contends that the subject matter of claims 4 and 5 would have been obvious under 35 U.S.C. § 103(a) over the combination of Higgins, Ingebrethsen, Haglund, and Gilbert. Pet. 33–36. Petitioner also contends that the subject matter of claims 8, 9, 11, and 19 would have been obvious under 35 U.S.C. § 103(a) over the combination of Higgins, Ingebrethsen, Haglund, and Susa. *Id.* at 36–40. We already have determined that Petitioner did not set forth sufficient articulated reasoning with rational underpinnings to support the combination of Higgins, Ingebrethsen, and Haglund. Petitioner does not provide any additional arguments with respect to the proposed combinations of Higgins, Ingebrethsen, Haglund, and Gilbert, and Higgins, Ingebrethsen, Haglund,

and Susa, with respect to an ordinarily-skilled artisan's motivation to combine the cited references. Accordingly, Petitioner has not established a reasonable likelihood of prevailing on the grounds that claims 4 and 5 would have been obvious under 35 U.S.C. § 103(a) over the combination of Higgins, Ingebrethsen, Haglund, and Gilbert, or that claims 8, 9, 11, and 19 would have been obvious under 35 U.S.C. § 103(a) over the combination of Higgins, Ingebrethsen, Haglund, and Susa.

D. Obviousness over Takeuchi and Haglund

Petitioner contends that the subject matter of claims 1–3, 6–10, 17, and 19 would have been obvious under 35 U.S.C. § 103(a) over the combination of Takeuchi and Haglund. Pet. 40–56. Petitioner relies on the Nayfeh Declaration in support of its contentions. *Id.*

1. Overview of Takeuchi

Takeuchi is directed to a flavor-generating device for simulated smoking, wherein the flavor to be inhaled by the user is generated by heating a liquid flavor source without relying on combustion. Ex. 1003, 1:3–8.

Figure 1 of Takeuchi is reproduced below:

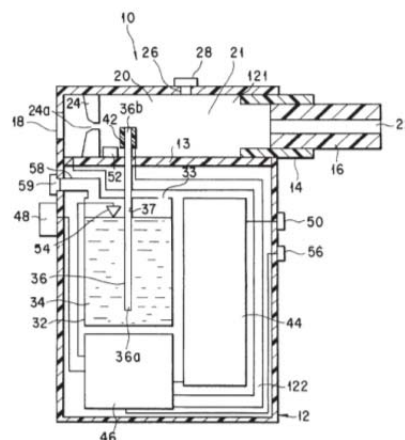


FIG. 1

Figure 1 is a sectional view of a flavor-generating device described in Takeuchi. *Id.* at 2:51–52. Flavor-generating device 10 includes casing 12, the inner space of which is separated into upper chamber 121 and lower chamber 122 by partition wall 13. *Id.* at 4:29–33. Mouthpiece 16 having port 22, or, alternatively, a filter, is detachably inserted into inhalation port holder 14. *Id.* at 4:41–47. Within upper chamber 121, gas passageway 20 is defined between air intake port 18 and inhalation port 22. *Id.* at 4:50–52. Liquid container 32 containing liquid flavor source 34 is fixed within lower chamber 122. *Id.* at 5:28–30. Liquid passageway 37 is defined by capillary tube 36, with capillary tube lower end 36a positioned near the bottom of liquid container 32. *Id.* at 5:49–52. Capillary tube outlet portion 36b protrudes into upper chamber 121, creating cooling chamber 21 between capillary tube 36 and inhalation port 22. *Id.* at 5:1–3. Heater 42 is mounted to capillary tube 36, and has an inner diameter equal to that of capillary tube 36. *Id.* at 6:7–10. Liquid container 32 is provided with opening 33 to maintain the inner pressure of liquid container 32 at atmospheric pressure in order to ensure the transfer of liquid flavor source 34 by capillary force. *Id.* at 5:58–62.

Takeuchi states that “liquid flavor source 34 contains at least a flavor substance,” and that “it is possible for the liquid flavor source 34 to contain a substance forming aerosol when heated” in order to add smoke to the flavor. *Id.* at 5:32–35. According to Takeuchi, when the described flavor-generating device is used as a simulated smoking article, liquid flavor source 34 can contain tobacco components such as tobacco extracts and tobacco smoke condensate. *Id.* at 5:43–46.

2. *Discussion*

Petitioner contends that Takeuchi describes a “rod-like” heater located within a tube, but “does not expressly state how the in-tube heating element is made.” Pet. 45. Petitioner contends that “[c]oils were a common form of resistive heating element, which a POSA would have had reason to use in the electronic cigarette of Takeuchi.” *Id.* Petitioner further contends that a person having ordinary skill in the art “would have recognized Haglund as a particularly efficient version of an in-tube heater (from the heat transfer perspective) to be used as (or as a substitution for) the ‘rod-like’ heater of Takeuchi.” *Id.* at 46 (citing Ex. 1002 ¶ 143). According to Petitioner, “[a] POSA interested in ensuring the Takeuchi system quickly and efficiently transferred sufficient heat from the coil to the liquid tobacco flavor medium to cause an aerosol to form would thus have had reason to incorporate Haglund into Takeuchi, by implementing Takeuchi’s in-tube heater as a coil of resistance wire.” *Id.*

Patent Owner argues that “one skilled in the art would not modify Takeuchi’s system in which liquid to be vaporized moves due to capillary forces with Haglund’s turbulent flow liquid heater.” Prelim. Resp. 31. Patent Owner argues that “creation of turbulent flow would inhibit fluid movement caused by capillary forces by disrupting the surface tension of the liquid.” *Id.* at 33. Patent Owner further argues that Haglund heats a fluid but does not vaporize it, that Haglund “employs high power applications, using multi-phase AC powering,” and that “Haglund’s contemplated coil has a diameter up to six inches.” *Id.*

We agree with Patent Owner that Petitioner has not provided sufficient explanation as to why a person having ordinary skill in the art

would have replaced Takeuchi's rod-like heater with Haglund's coil heater that produces turbulent flow. Takeuchi states that the objects of the invention include providing "a flavor-generating device which can be driven with a low energy, which effectively prevents a flavor source from being wasted" that "can be made small in size and light in weight." Ex. 1003, 1:59–67. Takeuchi also emphasizes that "[o]ne feature of the present invention resides in that transportation of a liquid flavor source from the liquid container containing the same to the heater site is effected by the capillary force or capillary." *Id.* at 3:31–34. Petitioner does not explain adequately why a person having ordinary skill in the art would use the Haglund coil, which is designed to heat high velocity fluid while creating turbulent flow, to heat liquid that is transported by capillary force in the Takeuchi electronic cigarette. Petitioner's statement that Haglund teaches "a particularly efficient structure for an in-tube heater (from the heat-transfer perspective)," without objective support, is insufficient.

Accordingly, Petitioner has not established a reasonable likelihood that it would prevail on the ground that claims 1–3, 6–10, 17, and 19 would have been obvious under 35 U.S.C. § 103(a) over the combination of Takeuchi and Haglund.

E. Obviousness over Takeuchi, Haglund, and Gilbert or Susa

Petitioner contends that the subject matter of claims 4 and 5 would have been obvious under 35 U.S.C. § 103(a) over the combination of Takeuchi, Haglund, and Gilbert. Pet. 56–57. Petitioner also contends that the subject matter of claims 9 and 11 would have been obvious under 35 U.S.C. § 103(a) over the combination of Takeuchi, Haglund, and Susa. *Id.* at 57–59. We have already determined that Petitioner did not set forth

sufficient articulated reasoning with rational underpinnings to support the combination of Takeuchi and Haglund. Petitioner does not provide any additional arguments with respect to the proposed combinations of Takeuchi, Haglund, and Gilbert, and Takeuchi, Haglund, and Susa, with respect to a skilled artisan's motivation to combine the references. Accordingly, Petitioner has not established a reasonable likelihood of prevailing on the grounds that claims 4 and 5 would have been obvious under 35 U.S.C. § 103(a) over the combination of Takeuchi, Haglund, and Gilbert, or that claims 9 and 11 would have been obvious under 35 U.S.C. § 103(a) over the combination of Takeuchi, Haglund, and Susa.

III. CONCLUSION

For the foregoing reasons, we conclude that, on the present record, Petitioner has not established a reasonable likelihood that it would prevail on its challenge that claims 1–11, 17, 19, and 20 of the '641 patent are unpatentable.

IV. ORDER

In consideration of the foregoing, it is hereby
ORDERED that the Petition is *denied*.

IPR2015-01299
Patent 8,910,641 B2

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