

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ECTO WORLD, LLC and SV3, LLC,
Petitioners,

v.

RAI STRATEGIC HOLDINGS, INC.,
Patent Owner.

Case IPR2024-01280
Patent 11,925,202

PATENT OWNER PRELIMINARY RESPONSE

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- Ex. 2002 Notice of Institution of ITC Investigation No. 337-TA-1410
- Ex. 2003 Initial Determination Denying TEO, ITC Investigation No. 337-TA-1410
- Ex. 2004 U.S. Patent Pub. No. 2008/0038363
- Ex. 2005 U.S. Patent No. 5,613,505
- Ex. 2006 U.S. Patent No. 5,060,671
- Ex. 2007 File History of U.S. Patent No. 9,801,416
- Ex. 2008 File History of U.S. Patent No. 10,231,488
- Ex. 2009 Complainants' Responsive Claim Construction Brief from ITC Investigation No. 337-TA-1410
- Ex. 2010 Respondents' Opening Claim Construction Brief from ITC Investigation No. 337-TA-1410
- Ex. 2011 Reinskje Talhout et al., *Cigarette Design Features: Effects on Emission Levels, User Perception, and Behavior*, Tob Regul Sci. Author manuscript; available in PMC 2019 January 01

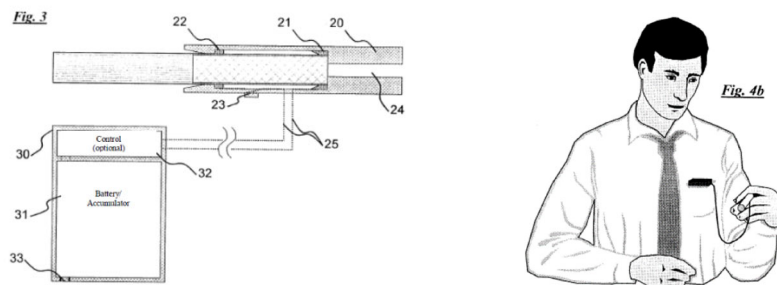
I. INTRODUCTION

In this proceeding, Ecto World, LLC and SV3, LLC (“Petitioners”) request institution of *inter partes* review (IPR) of claims 1-30 of U.S. Patent No. 11,925,202 (the ’202 patent), which is owned by RAI Strategic Holdings, Inc. (“Patent Owner” or “RAI”). Petitioners also filed a petition for post-grant review (PGR) of the ’202 patent on the same day that they filed the IPR petition. PGR2024-00049, Paper No. 3. Neither petition should be instituted.

Petitioners’ IPR challenge presents four obviousness grounds, all of which are deficient. In Grounds 1 and 2, Petitioners challenge claims 1, 3-15, and 18-29 as allegedly being obvious over Takeuchi (and Pienemann for certain claims). Both grounds rely on Takeuchi as allegedly disclosing the “electrical resistance heater” required by all claims of the ’202 patent. But Takeuchi discloses only a general “heater” and not the specifically claimed “*electrical resistance* heater,” and Petitioners do not argue or present evidence showing that Takeuchi inherently discloses this limitation. Grounds 1 and 2 therefore fail.

Grounds 3 and 4, challenging claims 1-30 as allegedly being obvious over Kim and Pienemann (and Susa, should the term “smoking article” be construed to require tobacco, Pet. at 107), likewise fail. The Petition argues that a person of ordinary skill in the art (POSA) would have been motivated to “implement Pienemann’s puff detector and electronic circuit 32 in Kim’s device.” *Id.* at 73-76.

But a POSA would not have modified Kim in this manner because doing so would render Kim unsatisfactory for its intended purpose of providing a cigarette substitute device with dimensions and weight of a conventional cigarette. Indeed, recognizing that its electronic circuit 32 is inappropriate for integration within a cigarette-sized device, Pienemann places it within a separate supply unit 30 that can be “carried in a breast pocket, belt holder or similar.” Ex. 1006 at 10:11-16.



Adding Pienemann’s puff detector and electronic circuit 32 to Kim’s cigarette substitute device would have required enlarging Kim’s device and making it heavier. These modifications render Kim unsatisfactory for its intended purpose, and a POSA therefore would have no motivation to make them. Grounds 3 and 4 fail.

Finally, the Board should exercise its discretion to deny institution under 35 U.S.C. § 325(d) because all of the Petition’s prior-art references were previously presented to the Patent Office, and Petitioners made no attempt to establish material error. The two-prong test of *Advanced Bionics* thus supports denial.

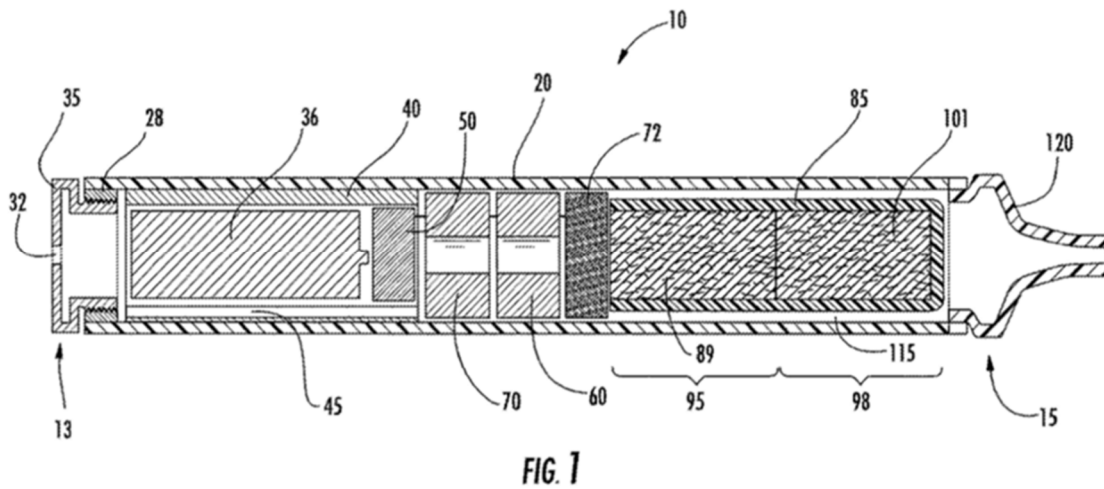
Institution of IPR should be denied.

II. BACKGROUND

A. The '202 Patent

The '202 patent is entitled “Tobacco-Containing Smoking Article,” and claims priority through a series of continuation applications to U.S. Patent App. No. 11/550,634, filed on October 18, 2006. Ex. 1001 at 1:8-24. The '202 patent describes embodiments of a smoking article that includes an electrical power source that powers an electrical resistance heater. *See, e.g., id.* at 6:4-14. The electrical resistance heater is configured to heat an aerosol-forming material in a storage compartment (*id.* at 5:65-6:29), and the storage compartment is arranged such that the liquid aerosol-forming material can be wicked into contact with the electrical resistance heater to volatilize the liquid aerosol-forming material. *Id.* at 33:1-6. Embodiments of the smoking article additionally include a controller configured to activate current flow through the heater in response to a draw on the smoking article. *Id.* at 5:29-36.

Figure 1, reproduced below, shows a longitudinal cross-sectional view of one embodiment of a representative smoking article 10 of the '202 patent:



Id. at Fig. 1. The smoking article 10 has an overall shape that is generally rod-like or tubular in nature, generally akin to a cigarette-type or cigar-type smoking article. *Id.* at 19:53-55. The smoking article 10 includes a distal end 13 and a mouth-end 15. *Id.* at 19:56-57.

The smoking article 10 further includes an outer container or housing 20. *Id.* at 19:58-59. Although the dimensions and shape of the outer container 20 can vary, a representative outer housing generally has a greater length than diameter and can be provided using a variety of materials. *Id.* at 19:59-64. As shown, the mouth-end 15 includes an opening adapted for egress of an aerosol generated within the smoking article, and the distal end 13 includes an opening adapted for intake of air into the smoking article 10. *Id.* at 20:4-9.

B. Other Proceedings On The '202 Patent

On June 11, 2024, RAI, R.J. Reynolds Vapor Company, R.J. Reynolds Tobacco Company, and RAI Services Company (collectively “Complainants”)

filed an ITC complaint, seeking institution of a Section 337 investigation against Petitioners and other Respondents for, *inter alia*, infringement of the '202 patent. *See Certain Disposable Vaporizer Devices*, Inv. No. 337-TA-1410; Ex. 2001. The ITC instituted the investigation on July 17, 2024. Ex. 2002.

Complainants also filed a Motion for Temporary Relief in the ITC on the same day that they filed the complaint. Ex. 1009. In the motion, Complainants requested a temporary exclusion order (TEO) and cease-and-desist orders directed to each of the Respondents. *Id.* On November 19, 2024, Administrative Law Judge (ALJ) Monica Bhattacharyya denied Complainants' motion. Ex. 2003. The hearing for the permanent phase of the ITC investigation is scheduled to start on April 7, 2025, and the Commission is expected to issue its Final Determination in November 2025.

As noted above, Petitioners filed a PGR petition against the '202 patent on the same day that they filed the IPR petition. PGR2024-00049, Paper No. 3.

C. The Asserted Prior Art

Petitioners assert four prior art references across their four unpatentability grounds:

- U.S. Patent No. 6,155,268 to Takeuchi ("Takeuchi");
- U.S. Patent Application Pub. No. 2006/0016453 to Kim ("Kim");

- International Patent Application Pub. No. WO2000/028843 to Pienemann (“Pienemann”);
- EP Patent Appl. No. 0845220 to Susa (“Susa”).

Pet. at 5; Exs. 1004, 1006, 1007, 1018. All of these references were previously presented to the Patent Office. *See* Section IV; Ex. 1001 (“References Cited”).

For Ground 1, Petitioners assert that claims 1, 3-15, and 18-29 are obvious in view of Takeuchi alone. Pet. at 15-63. For Ground 2, Petitioners assert that claims 6, 7, 14, 15, and 18-29 are obvious over Takeuchi in view of Pienemann. *Id.* at 63-73. For Ground 3, Petitioners assert that claims 1-30 are obvious over Kim in view of Pienemann. *Id.* at 73-106. For Ground 4, Petitioners assert that claims 1-30 are obvious over Kim in view of Pienemann in further view of Susa. *Id.* at 107-09.

Patent Owner provides an overview of Takeuchi, Kim, and Pienemann below. The Petition relies on Susa only for its teaching of a tobacco component, should the Board construe the claim term “smoking article” to mean “tobacco containing smoking article.” *Id.* at 107. The Board need not address Susa in denying institution, and Patent Owner does not further describe Susa here.

1. Takeuchi

Takeuchi discloses a “flavor-generating device” that “includes a chamber having an air inlet port and a flavor inhalation port.” Ex. 1004 at Abstract. The device defines “a gas passageway between the air inlet port and the inhalation port.”

Id. It also provides for “a liquid container for storing a liquid flavor source” that “is maintained at substantially an atmospheric pressure.” *Id.*

Figure 1 of Takeuchi, reproduced below, shows “the construction of a flavor-generating device 10 according to one embodiment.” *Id.* at 4:26-28.

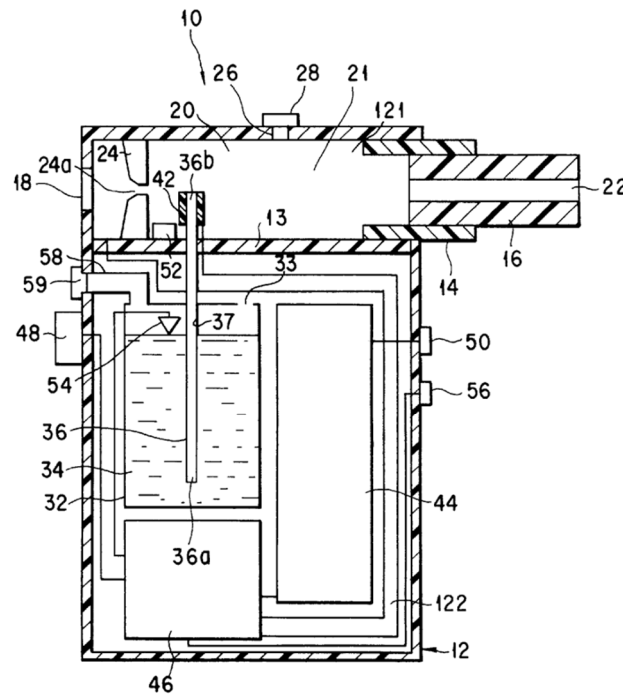


FIG. 1

Id. at Fig. 1.

“In the device 10, the liquid passageway is constituted by a capillary tube.” *Id.* at 4:28-29. The flavor-generating device 10 also “includes a casing 12 made of plastic, metal, ceramic, wood, etc.” *Id.* at 4:29-31. The inner space of the casing 12 is partitioned into two chambers, “an upper chamber 121 and a lower chamber 122 by a partition wall 13.” *Id.* at 4:31-33. The specification describes that “the upper

chamber 121 is used as a gas passageway 20 for forming a gaseous stream of a flavor which is to be inhaled by a user,” and “the lower chamber 122 is used as a housing for housing a liquid container 32, a power source 44 and a control circuit.” *Id.* at 4:33-38.

Figure 8 of Takeuchi, reproduced below, schematically “shows the construction of a flavor-generating device according to another embodiment.” *Id.* at 8:49-51.

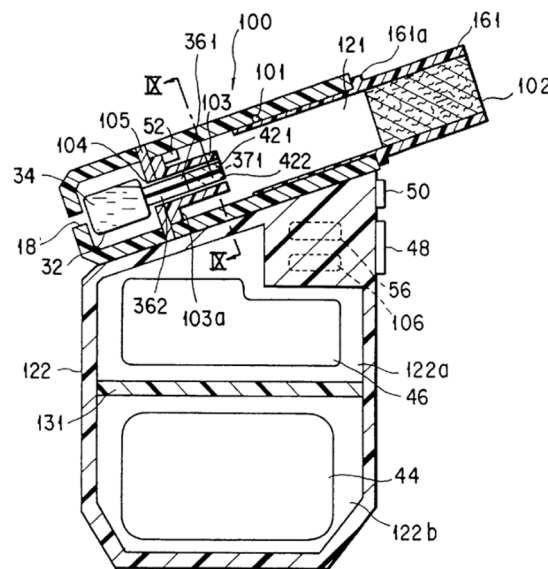


FIG. 8

Id. at Fig. 8.

Air intake port 18, like that shown in Figure 1, “is provided at the closed end (lower end) of the upper chamber 121.” *Id.* at 9:8-9. A mouthpiece 161 may be detachably inserted directly “into the open end portion (upper end portion) of the

upper chamber 121.” *Id.* at 9:9-12. The specification discloses that the electrical connections are “essentially the same as those in the device shown in FIG. 1, and thus are not shown in FIG. 8.” *Id.* at 9:5-7.

2. Kim

Kim discloses a “spot-heating cigarette substitute device, which, in response to an electric power supplies and suction by a user, evaporates nicotine mixture and delivers them to the user.” Ex. 1007 at Abstract. The device has a porous solid chip, and “an electric circuit is embedded therein for providing heat necessary for evaporating the nicotinic compound.” *Id.*

Figure 1 of Kim, reproduced below, is “a side elevation in longitudinal section illustrating the preferred embodiment of the cigarette substitute device (1).” *Id.* at [0012].

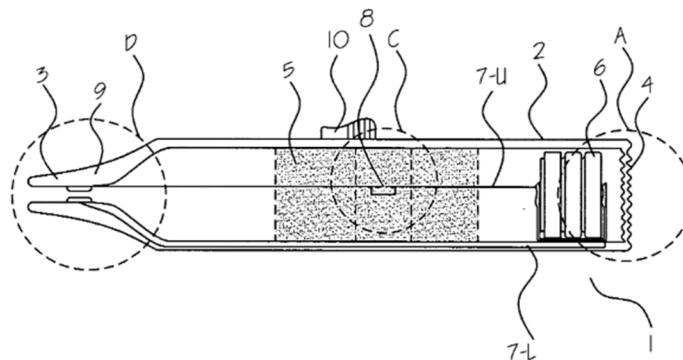


FIG. 1

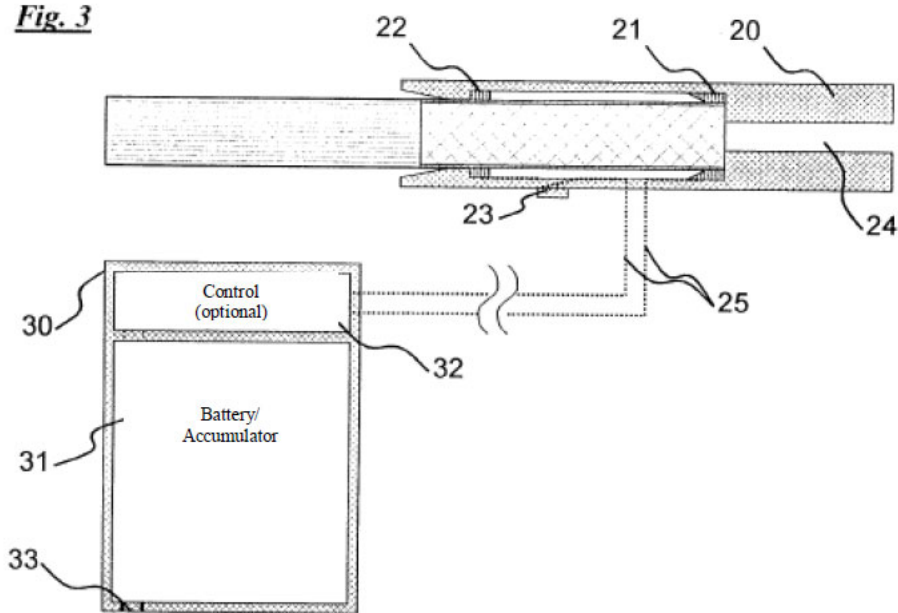
Id. at Fig. 1.

The cigarette substitute device (1) is “comprised of a housing (2) in the form of an elongated tube, a mouth tip (3), an LED (Light Emitting Diode) (4), a porous chip (5), three 3 Volt mini-battiest [sic] (6) with 7 mm diameter, two electric wires (7-U) and (7-L), an electric shorting connector (8), an on/off electric connector (9), and a sliding knob (10).” *Id.* “The housing (2) is preferably manufactured . . . to present the same appearance as a conventional combustible cigarette.” *Id.*

3. Pienemann

Pienemann discloses “a system for supplying an inhalable aerosol.” Ex. 1006 at Abstract. The system “contains a substrate portion (1”) and an inhaling device.” *Id.* The substrate “has at least one heat resistor and contains an aerosol-forming material inside a casing which has an air inlet and an aerosol outlet.” *Id.*

Fig. 3 of Pienemann, reproduced below, is “a schematic longitudinal section through an inhaler device.” *Id.* at 4:23-24.



Id. at Fig. 3.

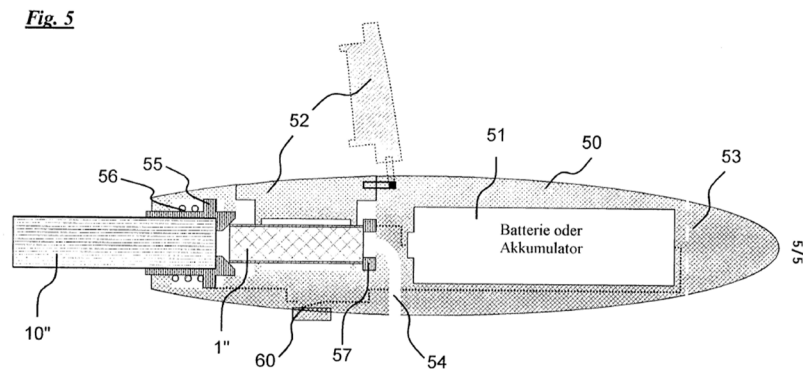
As shown in Figure 3, “there are two contacts (electrodes) 21 and 22 in a housing 20 via which contact is made to the conductive wrapper of a substrate portion received by the smoking device.” *Id.* at 9:1-3. “Via an electrical connection 25, the contact 21 is directly connected to a supply unit 30 arranged in a separate housing.” *Id.* at 9:7-8. “The supply unit 30 includes a battery or accumulator 31, and optionally a controller 32.” *Id.* at 9:10-13.

Pienemann discloses that “the smoking device with mouthpiece and substrate portion can be handled like a conventional cigarette,” while the supply unit can be “carried in a breast pocket, belt holder or similar.” *Id.* at 10:11-14. Such use of the smoking product is shown in Figure 4b, which is reproduced below.



Id. at Fig. 4b.

Fig. 5 of Pienemann, reproduced below, is “a schematic longitudinal section through another embodiment of an inhaler device according to the invention, which is designed for the use of a separate mouthpiece and in which the power supply is located in the housing, with inserted substrate portion and inserted mouthpiece.” *Id.* at 5:9-14.



Id. at Fig. 5.

The one-piece embodiment of Figure 5 has “a cigar-like shape.” *Id.* at 10:17-18.

D. Level Of Ordinary Skill In The Art

Petitioners propose a definition of a POSA. Pet. at 8. Patent Owner reserves the right to dispute Petitioners' definition if an IPR is instituted. For purposes of this Preliminary Response, Patent Owner maintains that Petitioners' arguments fail even under Petitioners' POSA definition.

E. Claim Construction

Claim terms are to be construed in accordance with the standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc).

The Petition proposes claim constructions for two terms of the '202 patent: "wicked into contact with the electrical resistance heater" and "smoking article." Pet. at 8-11. But these terms do not need to be construed in order for the Board to reach its institution decision. None of Patent Owner's arguments against institution requires construction of these terms. Patent Owner reserves its right to put forth constructions of these or any other terms if the Board institutes trial.

III. THE BOARD SHOULD DENY INSTITUTION BECAUSE PETITIONERS HAVE NOT SHOWN A REASONABLE LIKELIHOOD THAT ANY CHALLENGED CLAIM IS UNPATENTABLE

The Petition fails to show that any claim of the '202 patent is unpatentable, and therefore institution should be denied.¹

A. Grounds 1 And 2: The Petition Failed To Prove That Each And Every Limitation Is Disclosed In The Prior Art

In Ground 1, Petitioners argue that claims 1, 3-15, and 18-29 are obvious over Takeuchi. Pet. at 15-63. Ground 2 argues that claims 6, 7, 14, 15, and 18-29 are obvious over Takeuchi and Pienemann. *Id.* at 63-73. Both of these grounds are deficient because Petitioners failed to show that each limitation of the challenged claims is disclosed in the prior art.

Each claim of the '202 patent requires an “electrical resistance heater.” Ex. 1001 at 32:58-33:18, 34:7-31 (independent claims 1 and 18 reciting this limitation). An electrical resistance heater is a specific type of heater, *i.e.*, one that generates heat by passing a current through an electrically conductive material (*e.g.*, a wire). *See, e.g., id.* at 21:44-22:8. The claimed “electrical resistance heater” stands in contrast to other types of heaters used in aerosol-delivery devices,

¹ Patent Owner reserves the right to make additional arguments concerning the patentability of the challenged claims if the Board institutes trial.

such as inductive heaters that use electromagnetic fields to generate heat. *See, e.g.*, Ex. 2004, U.S. Patent Pub. No. 2008/0038363, entitled “Aerosol Delivery System and Uses Thereof,” describing preferred embodiments using inductive heaters for heating a substrate to generate aerosols; Ex. 2005, U.S. Patent No. 5,613,505, entitled “Inductive Heating Systems for Smoking Articles,” describing (at Abstract) an “induction heating source [that] provides an alternating electromagnetic field which inductively heats a susceptor in thermal proximity with tobacco flavor medium to generate aerosols”; Ex. 2006, U.S. Patent No. 5,060,671, entitled “Flavor Generating Article,” describing (at 10:1-7) the coupling of energy “to the [flavor-generating] article by magnetic or electromagnetic induction.”

The Petition argues that “Takeuchi discloses [the ‘electrical resistance heater’] limitation under two different, but equally applicable interpretations.” Pet. at 27. This is incorrect; as explained below, Petitioners fail to show disclosure of the claimed “electrical resistance heater” in Takeuchi under either of its interpretations.

1. Petitioners’ First Interpretation Of Takeuchi Discloses A “Heater,” Not The Claimed “*Electrical Resistance Heater*”

Under its first interpretation, the Petition argues that (i) heater 42 of Figure 1, and (ii) plate-like heaters 421, 422 of Figure 8 disclose the claimed

“electrical resistance heater,” citing 6:7-12 and 9:29-34 of Takeuchi (Pet. at 27-28):

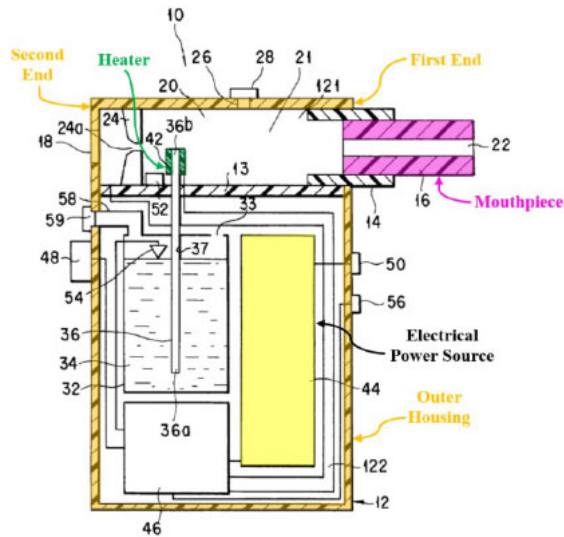


FIG. 1

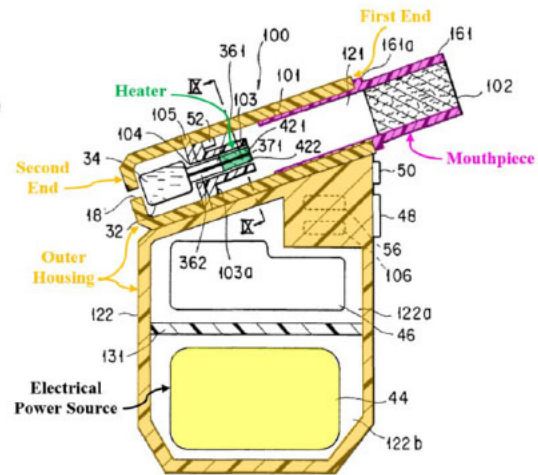


FIG. 8

Id. at 29-30.

But neither of the cited portions of Takeuchi discloses an electrical resistance heater. Column 6, lines 7-12 of Takeuchi states:

In the embodiment shown in FIG. 1, the heater 42 consists of a tubular body mounted to the capillary tube 36 and having an inner diameter equal to that of the capillary tube 36. In other words, the outlet port 36a of the liquid passageway 36 is formed by the heater 42 itself.

Ex. 1004 at 6:7-12.

As seen above, this portion of Takeuchi discloses a heater but not the claimed “*electrical resistance* heater.” Likewise, column 9, lines 29-34 of Takeuchi merely discloses a heater but not an electrical resistance heater:

In the device shown in FIG. 8, the liquid passageway 371 is defined between two substantially parallel plates spaced apart from each other. The distal end portion (the outlet portion of the liquid flavor source) of the liquid passageway 371 is heated by plate-like heaters 421 and 422 mounted to the plate 361 and 362, respectively.

Id. at 9:29-34.

The Petition does not explain why Takeuchi's general heaters allegedly disclose the specifically claimed "electrical resistance heater." *See* Pet. at 27-28. They do not. As explained above, an electrical resistance heater is a specific type of heater, distinct from other types of heaters used in smoking articles (*e.g.*, induction heaters, dielectric heaters, etc.). The Petition does not attempt to explain why Takeuchi's heaters are allegedly electrical resistance heaters. *Id.* Nor does the Petition attempt to explain why Takeuchi's general heaters could not be alternative types of heaters, like induction heaters. *Id.*

The Petition also does not argue that Takeuchi's general heaters necessarily (*i.e.*, inherently) disclose the claimed "electrical resistance heater." *Id.* Such an argument would be wrong, in any event, because nothing in Takeuchi's disclosure forecloses its heaters from being induction heaters or alternative types of heaters. For example, Takeuchi states that "electric power is supplied from a power source 44 ... to the electric heater 42" (Ex. 1004 at 6:12-14), and this disclosure is consistent with inductive heaters, which require electric power to generate a

magnetic field for producing heat. *See, e.g.*, Ex. 2005 at 5:38-65 (describing smoking articles with induction heating source 10 that includes an “appropriate circuit LC connected to a battery or other source of electrical power”).

The Petition makes no obviousness argument for the “electrical resistance heater” limitation. Pet. at 27-28. Thus, the Petition fails to show that Takeuchi explicitly discloses an “electrical resistance heater” (and it does not, *see generally* Ex. 1004), and the Petition does not even attempt to remedy this deficiency by making an inherency or obviousness argument.

Petitioners’ declarant Dr. Deevi likewise fails to remedy the Petition’s deficiencies. Dr. Deevi cites to the same portions of Takeuchi (*i.e.*, 6:7-12 and 9:29-34) as allegedly disclosing an electrical resistance heater, but these portions discuss only a general “heater,” as explained above. *See* Ex. 1003, ¶156.

Dr. Deevi offers no testimony explaining why Takeuchi’s general heaters allegedly disclose the claimed “electrical resistance heater,” nor does Dr. Deevi make any inherency or obviousness argument. *See id.*

For at least these reasons, Petitioners failed to prove that Takeuchi discloses an electrical resistance heater under the Petition’s first interpretation. Pet. at 27-30.

2. The Addition Of Takeuchi's Capillary Tube In Petitioners' Second Interpretation Does Not Yield An "Electrical Resistance Heater"

Petitioners also failed to prove that Takeuchi discloses an electrical resistance heater under the Petition's second interpretation. *Id.* at 30-31.

Petitioners' second interpretation is the same as its first interpretation, except that the second interpretation adds Takeuchi's capillary tube 36. *Id.* at 30 ("Takeuchi also discloses the claimed '*electrical resistance heater*' in the form of the combination of both heater 42 and capillary tube 36.") (emphasis by Petitioners).

The addition of the capillary tube 36 to the heater 42, while improper and inconsistent with the '202 Patent, does not result in an electrical resistance heater. Indeed, the component that generates heat, the heater 42, is still just a general heater, not an electrical resistance heater, and the capillary tube 36 is merely used in transporting liquid from a liquid flavor source 34 to an area in the vicinity of the heater 42. Ex. 1004 at 5:47-52, 6:4-12.

In sum, Grounds 1 and 2 of the Petition challenging claims 1, 3-15, and 18-29 are deficient because Petitioners failed to show that Takeuchi discloses the "electrical resistance heater" required by each of these claims.

B. Grounds 3 And 4: A POSA Would Not Have Been Motivated To Combine Kim And Pienemann As Proposed In The Petition

In Grounds 3 and 4, Petitioners argue that claims 1-30 are obvious over the combination of Kim and Pienemann (and Susa, should the claim term “smoking article” be construed to require tobacco). Pet. at 73-109. These grounds are deficient because a POSA would not have been motivated to combine Kim and Pienemann as proposed in the Petition.

Obviousness requires, among other things, a finding that a skilled artisan would have been motivated to combine the teachings of the prior art in such a way that it discloses the claimed limitations. *See, e.g., OSI Pharms., LLC v. Apotex Inc.*, 939 F.3d 1375, 1382 (Fed. Cir. 2019). There is no suggestion or motivation to make a proposed combination if it would render the prior art being modified unsatisfactory for its intended purpose. *See, e.g., In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984); *In re Fritch*, 972 F.2d 1260, 1265 n.12 (Fed. Cir. 1992); *Cook Grp. Inc. v. Bos. Sci. Scimed, Inc.*, 809 F. App’x 990, 1000-01 (Fed. Cir. 2020).

As explained below, Petitioners and their declarant overlook that its proposed combination of Kim and Pienemann would have rendered Kim inoperable for its intended purpose of being a cigarette substitute device. In failing to address this issue, Petitioners have not provided a sufficient showing that a POSA would have been motivated to combine Kim and Pienemann. The Board

should therefore reject Grounds 3 and 4 and deny institution as it has done previously under similar facts. *See, e.g., Victoria's Secret Stores LLC v. Andra Group, LP*, IPR2020-00853, Paper 12 at 27-29 (PTAB Oct. 22, 2020) (denying institution where “the proposed modification ... would render [a primary reference] unsatisfactory for the intended purpose”); *Telebrands Corp. v. Tinnus Enterprises, LLC*, PGR2016-00031, Paper 15 at 36-38 (PTAB Feb. 21, 2017) (finding “Petitioner’s proposed modification renders [a reference’s] inflatable balloon bouquet unsatisfactory for its intended purpose” and denying institution accordingly); *Keurig Green Mountain, Inc. v. Touch Coffee & Beverages, LLC*, IPR2016-01395, Paper 18 at 14 (PTAB Jan. 4, 2017) (“By modifying [a reference] to remove that benefit, the proposed combination renders [the reference] unsatisfactory for its intended purpose, which eliminates any reason to modify [the reference in the manner proposed].”).

1. Kim’s Intended Purpose Is To Provide a Cigarette Substitute Device With The Dimensions And Weight Of A Conventional Cigarette

A POSA would not have been motivated to combine Kim and Pienemann as proposed in the Petition because doing so would have rendered Kim inoperable for its intended purpose, which is providing a cigarette substitute device with the dimensions and weight of a conventional cigarette. Kim is entitled “Cigarette Substitute Device,” and its “Field of the Invention” section states that “[t]his

invention relates to a cigarette substitute device.” Ex. 1004 at [0001]; *see also id.* at Abstract (referring to a “cigarette substitute device”).

Continuing, Kim’s “Background of the Invention” section describes the physiological and psychological factors that “contribute to the habitual smoker’s ... cravings” for conventional cigarettes. *Id.* at [0002]. Kim indicates that “a purpose of the current application” is to provide a cigarette substitute device that does not produce the second-hand smoke of conventional cigarettes yet still approximates the physiological and psychological effects of smoking conventional cigarettes:

The hazardous effect of second-hand smoke is known as the same as a direct smoke. Smoking is prohibited even on open public space such as U.S. Californian beaches. Such social pressures make habitual smokers unpleasant. Not only for the addictive effect of the Nicotine, there are several psychological factors, which are known to contribute to the habitual smoker’s cigarette cravings. These include holding the cigarette, placing it between the user’s lips, puffing on it, and experiencing the taste and aroma of the smoke. It is a purpose of the current application to provide a cigarette substitute device to minimize the hazardous [sic] of second-smoke, meanwhile satisfying the habitual smoker's cigarette cravings without breaking the public requirement.

Id.. Kim likewise states that “growing public unacceptability of smoking cigarette[s]” has encouraged the development of “cigarette substitute devices for use which simulate the look, feel, and taste of combustible cigarettes.” *Id.* at [0003].

Kim’s figures depict aspects of a cigarette substitute device (1). Figure 1 “is a side elevation in longitudinal section illustrating the preferred embodiment of the cigarette substitute device [(1)],” and the subsequent Figures 2-7 depict further aspects of the cigarette substitute device [(1)]. Figures 2 and 3, for example, show enlarged perspective views of portions “A” and “B” of the cigarette substitute device (1) (*id.* at [0005]-[0007], [0013]-[0014]):

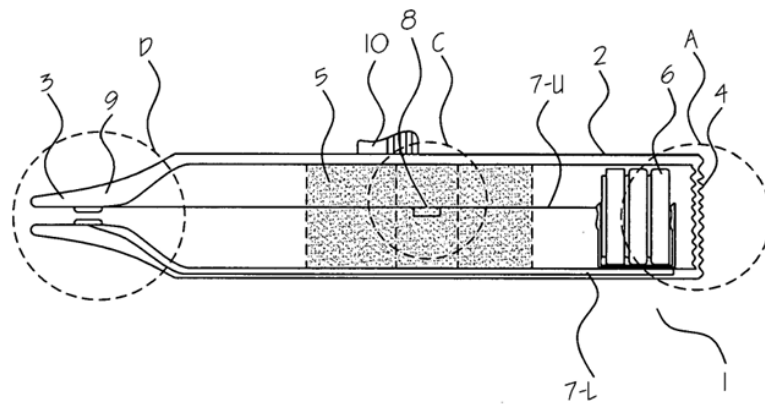


FIG. 1

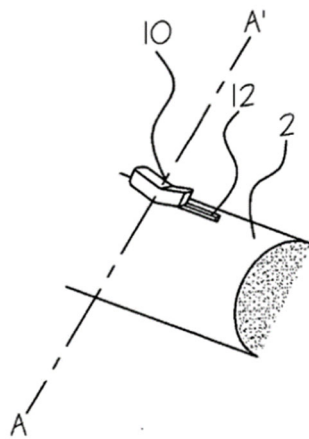


FIG. 3

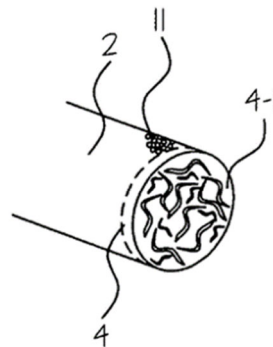


FIG. 2

Id. at Figs. 1-3.

Consistent with Kim's stated purpose of "provid[ing] a cigarette substitute device to minimize the hazard[s] of second-smoke, meanwhile satisfying the habitual smoker's cigarette cravings," including psychological factors associated with "holding the cigarette, placing it between the user's lips, puffing on it, and

experiencing the taste and aroma of the smoke” (*id.* at [0002]), Kim describes the cigarette substitute device (1) as having dimensions, weight, and other physical characteristics approximating those of a conventional cigarette:

The housing (2) is preferably manufactured of a stiff plastic sheet with a diameter, length and weight which approximate the size of a conventional combustible cigarette, and with the appropriate color and texture, a white paper like look with proper commercial trade mark on it, to present the same appearance as a conventional combustible cigarette.

Id. at [0012]; *see also id.* at [0013] (tip shown in Figure 2 is “comprised of a red color LED (4), whose front face is partially covered with white gray color wrinkles (4-1), resembling cigarette fire covered with ash”). Further, the cigarette substitute device (1) uses three 3-volt mini batteries “with 7 mm [millimeter] diameter,” and conventional cigarettes typically have diameters of approximately 7.5-8.0 millimeters. *Id.* at [0012]; *see* Ex. 2011 at Page 9 (“the usual diameter of a conventional cigarette is 7.5 to 8.0 (circumference 23.6 to 25.1) millimeter (mm)”).

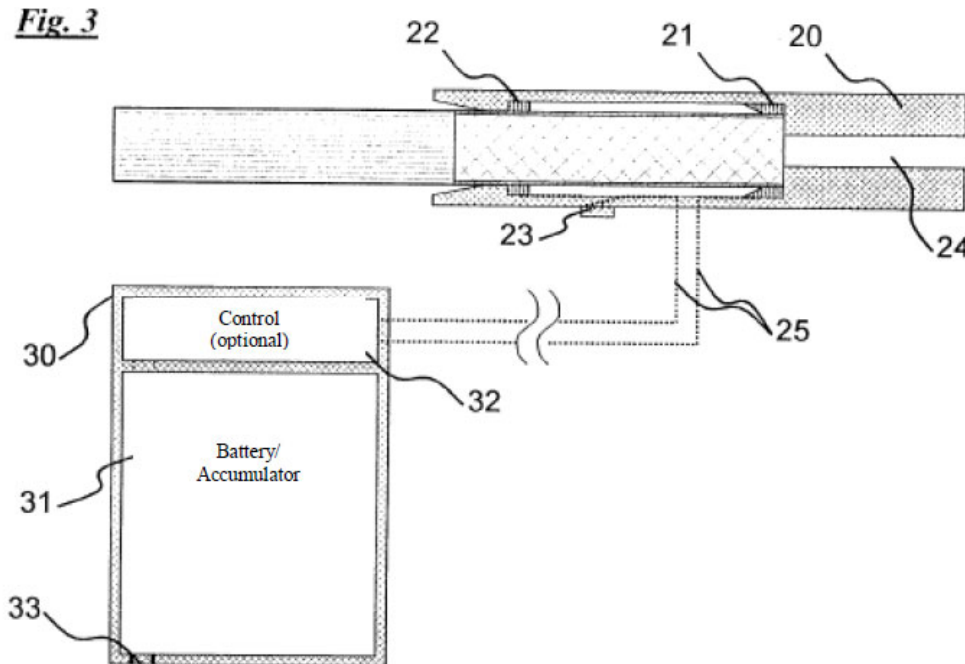
Accordingly, Kim makes clear that its intended purpose is to provide a cigarette substitute device that satisfies smokers’ physiological needs (*e.g.*, for nicotine) while also having physical characteristics (*e.g.*, dimensions, weight, appearance) of conventional cigarettes. As explained below, Petitioners’ proposed combination of Kim and Pienemann fails because it would require enlarging Kim’s

smoking device and adding weight to it, rendering it inoperable for Kim's intended purpose.

2. Pienemann's Puff Detector And Controller Are Inappropriate For Integration Within A Cigarette-Sized Device

Independent claim 1 of the '202 patent requires "a controller configured to activate current flow through the electrical resistance heater in response to a draw," and independent claim 18 requires "a puff-actuated controller configured to regulate current flow through the electrical resistance heater in response to a draw." Pet. at 114, 118. Conceding that Kim lacks disclosure of the claimed controllers, Petitioners argue that "a POSA would have been motivated to implement Pienemann's puff detector and electronic circuit 32 in Kim's device." Pet. at 73-76 (combination "amount[s] to combining ... Kim's device (1) [and] Pienemann's puff detector/electronic circuit 32"). Not so.

Pienemann describes its electronic circuit 32 (also referred to as "controller 32") as being part of a supply unit 30 that connects to contact 22 of Pienemann's smoking device (Ex. 1006 at 9:1-13):

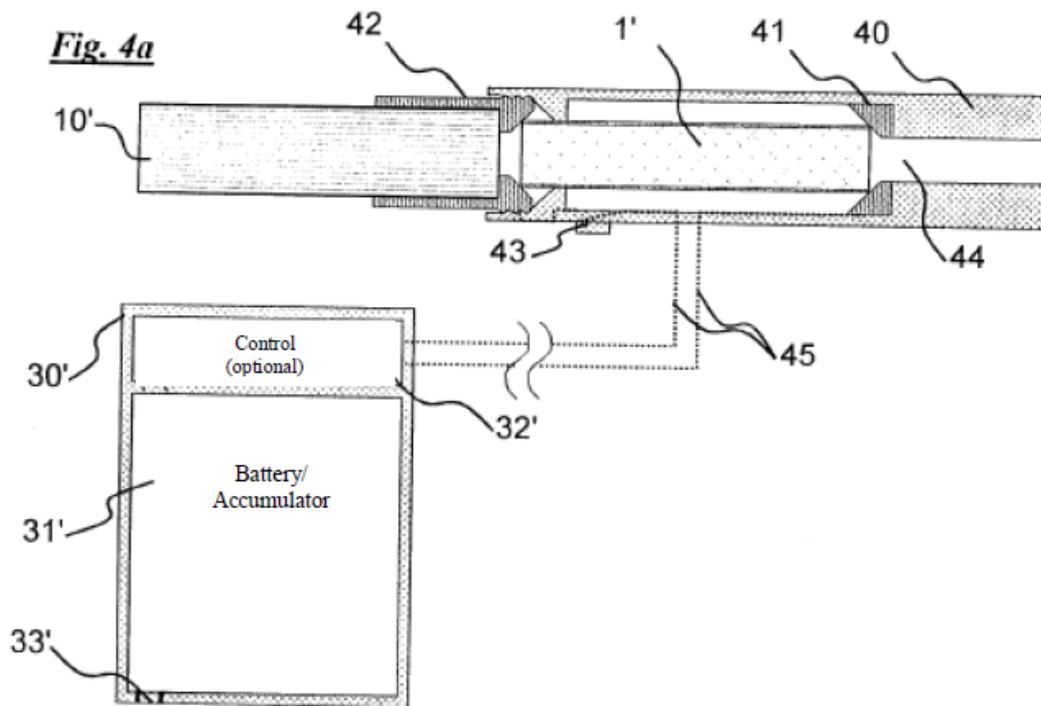


Id. at Fig. 3.

As seen in Pienemann's Figure 3 above, electrical connection 25 connects the smoking device to the separate supply unit 30: "Via an electrical connection 25, the contact 21 is directly connected to a supply unit 30 arranged in a separate housing. The connection to the contact 22 is via a switch 23, which can be used to close the circuit. The supply unit 30 includes a battery or accumulator 31, and optionally a controller 32." *Id.* at 9:7-11. Pienemann describes the controller 32 of the supply unit 30 as enabling "shutdown," *i.e.*, cutting off current flow in the smoking device: "Shutdown occurs by releasing the switch 23 or by the controller 32." *Id.* at 9:24-25. Pienemann also describes a

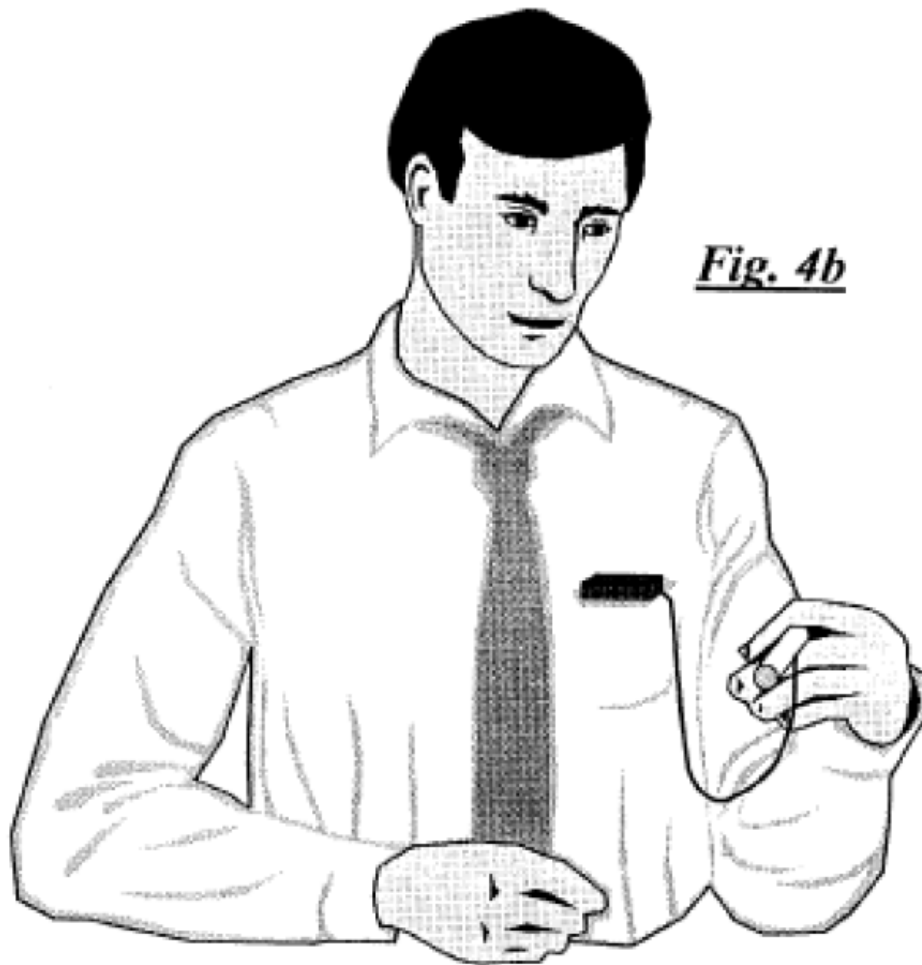
puff detector and electronic circuit for selectively heating different zones of a tobacco-containing substrate in response to a user's puff. *Id.* at 11:10-16.

Figure 4a, which only “differs from [Figure 3] in that the mouthpiece 10’ and the substrate portion 1’ are not connected to one another,” *id.* at 9:30-32, likewise uses a connecting cable 45 to connect the smoking device to a separate supply unit 30’ with controller 32’:



Id. at Fig. 4a.

Further describing the electrical connection between the smoking device and the supply unit 30, Pienemann states: “The smoking device is connected to the supply unit 30 via a cable (connection 25) (see also Figure 4b)” (*id.* at 9:14-16):



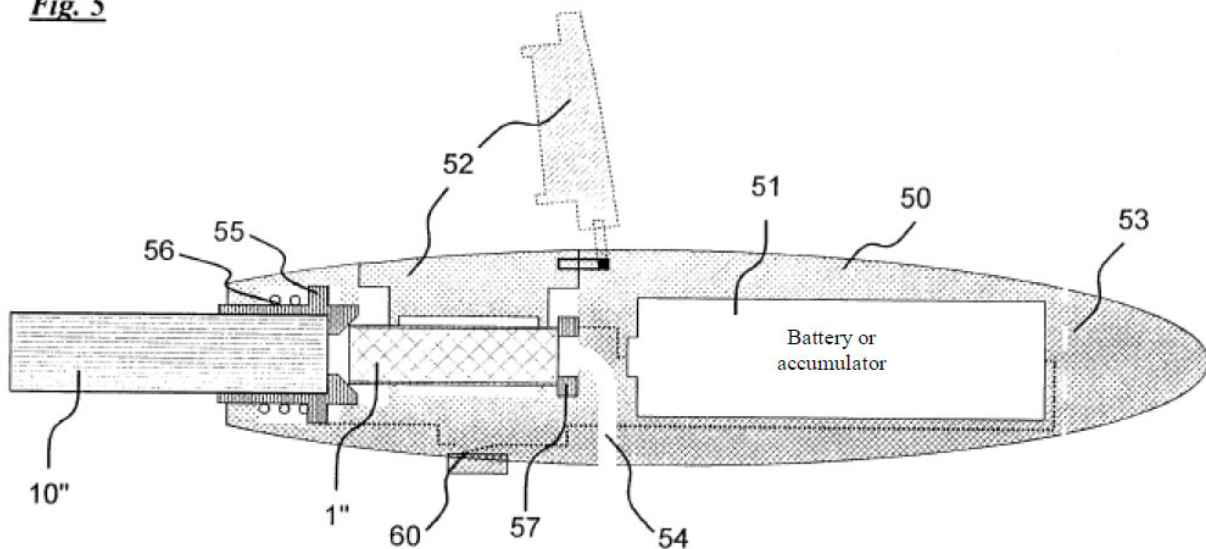
Id. at Fig. 4b.

“The smoking device with mouthpiece and substrate portion can be handled like a conventional cigarette; the supply unit is preferably carried in a breast pocket, belt holder or similar. Both parts are connected to each other by a highly flexible cable (connecting cable 45) of sufficient length.” *Id.* at 10:11-16. As depicted in the figure above, Pienemann’s smoking device has a size approximating that of a conventional cigarette. *See also id.* at 2:26-28 (criticizing prior art approach as having a size “distinctly different from that of a conventional

cigarette”), 7:1-4 (tobacco substrates used in device have preferred “[d]iameters from 5 mm to 10 mm,” consistent with conventional cigarettes), 10:11-14 (smoking device “can be handled like a conventional cigarette”).

Pienemann’s disclosure makes clear that its controller 32 (referred to throughout the Petition as “electronic circuit 32”) is too large, too heavy, or otherwise not appropriate for placement within a smoking device intended to have the dimensions and weight of a conventional cigarette. As described above, Pienemann’s controller (32 or 32’) is part of a supply unit (30 or 30’) that is separate from the smoking device, and Pienemann never suggests integrating the controller into the smoking device. Indeed, Pienemann’s “one-piece embodiment” does *not* include a controller:

Fig. 5



Id. at Fig. 5.

As seen above, Pienemann's one-piece embodiment lacks a separate supply unit 30 with a controller 32, and such a controller is not included in the smoking device, either. Rather, when the flap 52 is closed, and the user-controllable switch 60 is set to a "closed" position, current flows from the battery 51 to heat the substrate portion 1''. *Id.* at 10:25-30. No controller is used in Pienemann's one-piece embodiment. *See id.* at 10:17-36. This further shows that Pienemann's controller 32 is not appropriate for integration within a cigarette-sized smoking article.

3. Enlarging Kim's Cigarette Substitute Device To Accommodate Pienemann's Puff Detector And Electronic Circuit Would Have Rendered Kim Unsatisfactory For Its Intended Purpose

Incorporating Pienemann's puff detector and electronic circuit 32 into Kim's device (as Petitioners propose, Pet. at 73-76) would have required enlarging Kim's device and making it heavier, such that it would no longer meet Kim's intended purpose of providing a cigarette substitute device with the dimensions and weight of a conventional cigarette. As detailed above, Pienemann makes clear that its controller 32 is too large, too heavy, or otherwise inappropriate for integration within a cigarette-sized device, hence Pienemann's use of a separate supply unit 30 that may be carried "in a breast pocket, belt holder or similar." Ex. 1006 at 10:11-16; *see also* Fig. 5a (one-piece embodiment lacking a controller). Thus,

Petitioners’ proposed implementation of “Pienemann’s puff detector and electronic circuit 32 in Kim’s device” (Pet. at 75) would have required modifications to Kim’s cigarette substitute device, including at least (i) enlarging the device to accommodate these additional components, and (ii) adding weight to the device via the addition of these components. A POSA would not have been motivated to make these modifications because they would have rendered Kim unsatisfactory for its intended purpose of providing a cigarette substitute device with physical aspects (*e.g.*, dimensions, weight, appearance) approximating those of a conventional cigarette.

The Petition grapples with none of this. It argues that “implement[ing] Pienemann’s puff detector and electronic circuit 32 in Kim’s device” would have required only “minimal modifications.” Pet. at 75. But these modifications—including making Kim’s device bigger and adding weight to it—are contrary to Kim’s intended purpose of providing a cigarette substitute device. Additionally, the assertions in the Petition, and corresponding explanation from Petitioners’ declarant Dr. Deevi, that a POSA would find Kim’s activation mechanism error-prone and thus look to Pienemann for a reliable alternative does not hold under scrutiny. Pet. at 74. Contrary to Petitioners’ assertion, integrating Pienemann’s puff detector and electronic circuit would not resolve the issue of accidental activation but would likely exacerbate it. Particularly, Pienemann’s design

includes an external activation switch 60 that is prone to the same inadvertent activations that Dr. Deevi criticizes in Kim's device. *See* Ex. 1006 at Fig. 5, 10:28-30 ("By closing a switch 60, current flows between the contacts 55, 57 via the conductive wrapper of the substrate portion 1", so that it is heated.").

Pienemann's external switch 60 could also be activated unintentionally, leading to similar or greater levels of user frustration. Thus, contrary to Petitioners' assertions, integrating Pienemann's design would not effectively mitigate the error-prone nature of the Kim device's activation and might instead preserve or even increase the likelihood of these issues, further undermining the feasibility and desirability of the proposed modification.

To the extent Petitioners believe that Pienemann's puff detector and electronic circuit 32 could be reduced in size or otherwise modified for integration within Kim's cigarette substitute device, the Petition never argues as much (*see id.* at 73-76), and no evidence supports that a POSA would have had motivation to modify Pienemann in this manner with a reasonable expectation of success.

In sum, Grounds 3 and 4 of the Petition challenging claims 1-30 are deficient because Petitioners failed to provide a sufficient showing that a POSA would have been motivated to combine Kim and Pienemann.

IV. THE BOARD SHOULD EXERCISE ITS DISCRETION TO DENY INSTITUTION UNDER 35 U.S.C. § 325(d)

Discretionary denial under 35 U.S.C. §325(d) is warranted because “the same or substantially the same prior art or arguments previously were presented to the Office,” and Petitioners did not even attempt to show material error by the Patent Office. *Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 at 7 (PTAB Feb. 13, 2020) (precedential).

When deciding whether to exercise its Section 325(d) discretion, the Board applies the two-part framework of *Advanced Bionics*: “(1) whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office; and (2) if either condition of first part of the framework is satisfied, whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims.” *Id.* at 8. “If a condition in the first part of the framework is satisfied and the petitioner fails to make a showing of material error, the Director generally will exercise discretion not to institute *inter partes* review.” *Id.* at 8–9. “[T]his framework reflects a commitment to defer to previous Office evaluations of the evidence of record unless material error is shown.” *Id.* at 9.

Here, both prongs support discretionary denial, and Petitioners’ cursory discussion does nothing to counter this. Pet. at 110-11. Petitioners argue that “the

same or substantially the same art or arguments were *not* previously presented to the Office, ending the inquiry in favor of institution.” *Id.* (emphasis by Petitioners). In fact, all of the Petition’s references were presented to the Office and considered by the Examiner, and Petitioners failed to address the second prong of *Advanced Bionics*. Discretionary denial is warranted.

A. The Same Prior Art Was Previously Presented To The Office

In the first part of the *Advanced Bionics* framework, the Board may consider the relevant *Becton, Dickinson* factors: (a) the similarities of the asserted art and the art previously considered; (b) the cumulative nature of the asserted art and the art previously considered; and (d) the extent of overlap between arguments made during examination and the petitioner’s arguments. *Advanced Bionics* at 9-10 (citing *Becton, Dickinson and Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8, 17–18 (PTAB Dec. 15, 2017) (informative)).

Here, all of the Petition’s cited references were before the Examiner during prosecution of the ’202 patent. Specifically, Takeuchi, Kim, Pienemann, and Susa appear on Information Disclosure Statements that the Examiner signed and explicitly noted that “[a]ll references [were] considered except where lined through.” Ex. 1002 at 228-84. None were lined through, and all four of the Petition’s references are listed in the “References Cited” section on the face of the ’202 patent. *See* Ex. 1001.

Further, the Patent Examiner who examined the '202 patent, Mr. Phu H. Nguyen, has been examining the '202 patent family since 2006, when the first application of the family was filed. Applicant cited the Takeuchi, Kim, and Susa references to Mr. Nguyen at least as early as March 18, 2015, and Pienemann was first cited at least as early as August 30, 2018. Ex. 2007 at 108-09, 112; Ex. 2008 at 195. Thus, aside from being cited and considered by Mr. Nguyen in the prosecution of the '202 patent itself, the Examiner Mr. Nguyen also considered the Petition's prior art in the prosecutions of several related patents dating back to 2015. In each of these related patents, Mr. Nguyen certified that he considered the prior art presented in the Petition.

Petitioners concede that "Takeuchi, Kim, and Pienemann are listed on the face of the patent" (ignoring that Susa is also listed there), but suggests that because these references were not "applied in any office action," they cannot satisfy the first prong of *Advanced Bionics*. Pet. at 110. This is incorrect. The precedential *Advanced Bionics* decision recognizes that "[p]reviously presented art includes... art provided to the Office by an applicant, such as on an [IDS]."

IPR2019-01469, Paper 6 at 7-8; *see also Google LLC v. Valtrus Innovations Ltd.*, IPR2022-01197, Paper 18 at 15–16 (PTAB June 13, 2023) ("Our precedent holds that providing a document to the Office in an Information Disclosure Statement is sufficient to satisfy prong one of the *Advanced Bionics*"); *Palo Alto Networks*,

Inc. v. Centripetal Networks, Inc., IPR2021-01155, Paper 12 at 14 (PTAB Jan. 20, 2022) (reference that “Examiner acknowledged having considered . . . by signing the IDS” was “beyond dispute” before the Office during prosecution).

Petitioners criticize Patent Owner for citing too many prior-art references and for not specifically pointing out Takeuchi, Kim, Pienemann, and Susa to the Patent Office. Pet. at 110. These criticisms are unfounded. Applicant’s citation of prior art was necessary to fulfill its duty under 37 C.F.R. § 1.56 to disclose “*all* information known . . . to be material to patentability.” And Petitioners cite no evidence suggesting that Applicant regarded Takeuchi, Kim, Pienemann, and Susa as being references to which the Office should “pay particular attention.” Pet. at 110 (citing Ex. 1002 at 174). In any event, Petitioners’ criticisms do not change the fact that the Examiner previously considered the Petition’s prior art, thus satisfying the first part of the *Advanced Bionics* test.

Because Takeuchi, Kim, Pienemann, *and Susa* appear on the face of the ’202 patent and were not merely listed on an IDS but also signed by the Examiner as having been previously considered, the first prong of *Advanced Bionics* is satisfied. *See Fellowes, Inc. v. Treefrog Devs., Inc.*, IPR2020-01509, Paper 11 at 7-9, 17-18 (PTAB Feb. 22, 2021) (denying institution based on § 325(d) because prior art reference was considered by Examiner, as it was cited in IDS and listed on the face of the patent).

B. Petitioners Have Made No Showing of Material Examiner Error

Petitioners failed to address the second prong of *Advanced Bionics*, much less show that the Examiner erred in a manner material to patentability. *See* Pet. at 110-11. The Board may exercise its discretion to deny institution in circumstances where a petitioner does not address whether the Office materially erred. *See Wolfspeed, Inc. v. The Trustees of Purdue Univ.*, IPR2022-00761, Paper 9 at 14-15 (PTAB Nov. 8, 2022) (denying institution when petitioner did not address whether the Office materially erred); *see also Darfon Elecs. Corp. v. Michael Shipman*, IPR2022-01008, Paper 11 at 14 (PTAB Dec. 2, 2022) (same).

In addressing the first prong of *Advanced Bionics*, Petitioners note merely that the Petition's references were not applied against the claims during prosecution. Pet. at 110. But that alone cannot satisfy Petitioners' burden to show material error. *See, e.g., ABS Global, Inc. v. Cytonome/ST, LLC*, IPR2021-00306, Paper 13 at 13-14 (PTAB June 7, 2021) (Argument that "the Examiner did not apply [a] reference" was insufficient because petitioner did "not point[] out any specific disclosure from [the reference] that was overlooked by the Office."); *Vital Connect. Inc. v. Bardy Diagnostics, Inc.*, IPR2023-00381, Paper 7 at 19 (PTAB July 11, 2023) (Argument that grounds were "not previously considered and/or applied by the Examiner..., without any further analysis, cannot persuade us of material error.").

Further, Board panels have declined to independently review and assess the merits of a petition's grounds to conclude whether and how any material error occurred when a petitioner makes no attempt to explain what the alleged material error was. *See, e.g., Roku, Inc. v. Universal Elecs., Inc.*, IPR2019-01619, Paper 11, 11, 19 (PTAB April 2, 2020) (noting that a reference “was previously presented to the Office . . . in an [IDS],” and not considering the merits of the challenge when petitioner did not “explain adequately how the Examiner erred in a manner material to the patentability . . . by allegedly not considering [the reference]”); *Google LLC v. Kewazinga Corp.*, IPR2021-00527, Paper 16, 18–19 (PTAB Aug. 24, 2021) (same); *Microsoft Corp. v. IPA Techs. Inc.*, IPR2019-00840, Paper 9 at 17 (PTAB Nov. 12, 2019) (“Petitioner . . . does not explain how or why the examiner erred in evaluating” a reference cited in an IDS and finding “this factor weighs strongly in favor” of discretionary denial); *Ivantis, Inc. v. Sight Sciences, Inc.*, IPR2022-01540, Paper 14, 13-14 (PTAB Mar. 22, 2023) (denying institution where petitioner made no attempt to establish Examiner error in evaluating the art previously presented to the Office).

Thus, to the extent Petitioners want the Board to consider the merits of its grounds to determine whether Mr. Nguyen, the patent examiner who has been examining the '202 patent family since 2006, materially erred, the Board should reject that approach. “That approach not only places Petitioner[s'] burden

improperly on the shoulders of the Board, it cuts against the express language of our § 325(d) precedent requiring that Petitioner[s] make a ‘showing of material error’ and ‘point[] out sufficiently how’ the Examiner erred.” *Google*, IPR2022-01197, Paper 18 at 22-23 (citing *Advanced Bionics* at 8-9). In fact, “the express language of *Advanced Bionics* suggests that a petitioner should explain with specificity what it believes the previous error is and also show why that error is material to the patentability of the challenged claims.” *Id.* (citing *Advanced Bionics* at 8-9).

Finally, Petitioners should not be permitted to file a reply to address the second prong of *Advanced Bionics*. As the Board has made clear, petitioners must demonstrate *in the petition* how the Examiner allegedly erred in evaluating the asserted prior art. *See, e.g., ZTE (USA), Inc. v. Fractus, S.A.*, IPR2018-01457, Paper No. 10 at 13 (PTAB Feb. 28, 2019) (“We are unable to find any discussion in the Petition pointing out how the Office erred in evaluating the asserted prior art.”). Given that all of Petitioners’ asserted references were previously presented to the Examiner—as evident from the face of the ’202 patent and its Information Disclosure Statements—Petitioners surely understood (or should have understood) the need to address material error under the second prong of *Advanced Bionics*. Petitioners cannot claim that the application of this prong was unforeseeable.

The Board has denied authorization to file replies in similar circumstances. *See, e.g., United Patents Inc. v. Korea Advanced Institute of Sci. & Tech.*, IPR2019-01071, Paper No. 11 at 3-4 (PTAB Oct. 3, 2019) (“Petitioner could have, but did not, address the 35 U.S.C. § 325(d) ... issues in its Petition. Because Petitioner could have foreseen the relevance of [Section 325(d)] at the outset of this case, we are not persuaded that Petitioner should be given an additional opportunity to address [it] now.”); *Apple Inc. v. MPH Techs. OY*, IPR2019-00819, Paper No. 9 at 2 (PTAB Aug. 8, 2019) (“Petitioner failed to show good cause. In particular, Petitioner failed to show that it could not have anticipated Patent Owner’s [Section 325(d)] arguments.”); *Merial, Inc. v. Intervet Int’l B.V.*, IPR2018-00919, Paper No. 11 at 2-3 (PTAB Aug. 21, 2018) (denying authorization to file a reply when “Petitioner chose to file its Petition ... without any argument related to § 325(d)” and “the arguments Patent Owner raised in the Preliminary Response [relating to § 325(d)] were reasonably foreseeable”). The Board should deny any such request here too.

Further, while Petitioners state that they “reserve[] the right to respond” to arguments analogizing the Petition’s prior art and arguments to those considered “during prosecution of any related application(s)” (Pet. at 111), Patent Owner makes no such arguments in this POPR. Petitioners should not be permitted a reply addressing Section 325(d) for this additional reason.

Because Petitioners have failed to point out sufficiently how the Examiner allegedly erred in his evaluation of the asserted prior art, this factor weighs in favor of exercising discretion to deny institution.

V. CONCLUSION

For the reasons set forth above, the Board should deny institution of IPR.

Respectfully submitted,

Date: December 11, 2024

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CERTIFICATE OF WORD COUNT

The undersigned hereby certifies that the foregoing Patent Owner Preliminary Response complies with the type-volume limitations of 37 C.F.R. § 42.24(b). Excluding the items listed in 37 C.F.R. § 42.24(a) as not included in the word count, and using the word count of the word-processing system used to prepare the paper (Microsoft Word), the Patent Owner Preliminary Response contains 7444 words.

Dated: December 11, 2024

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that the foregoing Patent Owner Preliminary Response was served via email on the date below, upon the following:

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