

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

PHILIP MORRIS PRODUCTS, S.A.,
Petitioner,

v.

RAI STRATEGIC HOLDINGS, INC.
Patent Owner.

IPR2020-00921
Patent 9,814,268 B2

Before MICHELLE N. ANKENBRAND, JO-ANNE M. KOKOSKI, and
ELIZABETH M. ROESEL, *Administrative Patent Judges*.

ROESEL, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

A. *Background and Summary*

Philip Morris Products, S.A. (“Petitioner”) filed a Petition seeking an *inter partes* review of claims 16 and 17 of U.S. Patent No. 9,814,268 B2 (Ex. 1001, “the ’268 Patent”). Paper 2 (“Pet.”). RAI Strategic Holdings, Inc. (“Patent Owner”) filed a Preliminary Response. Paper 6 (“Prelim. Resp.”). We instituted an *inter partes* review as to all claims challenged in the Petition. Paper 13.¹

After institution, Patent Owner filed a Patent Owner Response (Paper 21, “PO Resp.”), Petitioner filed a Reply (Paper 23, “Pet. Reply”), and Patent Owner filed a Sur-reply (Paper 28, “PO Sur-reply”). We held an oral hearing on May 11, 2022, and a transcript of the hearing is included in the record. Paper 31.

We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a). For the reasons that follow, we determine that Petitioner has shown by a preponderance of the evidence that all challenged claims of the ’268 Patent are unpatentable.

B. *Real Parties in Interest*

Petitioner identifies Philip Morris Products, S.A.; Philip Morris International, Inc.; Altria Client Services LLC; and Philip Morris USA as real parties in interest. Pet. 5. Petitioner additionally states that Altria Group, Inc. is not a real party in interest but nevertheless agrees to be bound by any final written decision in this proceeding. *Id.* (citing 35 U.S.C.

¹ Institution was initially denied pursuant to our discretion under 35 U.S.C. § 314(a) and *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential). Paper 9.

§ 315(e)). Patent Owner identifies RAI Strategic Holdings, Inc.; R.J. Reynolds Vapor Company; RAI Innovations Company; and R.J. Reynolds Tobacco Company as real parties in interest. Paper 5, 2.

C. Related Matters

The parties identify the following district court action in which Patent Owner is asserting the '268 Patent against Petitioner: *RAI Strategic Holdings, Inc. v. Altria Client Services LLC*, No. 1:20-cv-393 (E.D. Va. filed Apr. 9, 2020). Pet. 5; Paper 5, 2.

The parties also identify IPR2020-00919 involving U.S. Patent No. 9,901,123 (“the '123 Patent”), which is related to the '268 Patent.² Pet. 5–6; Paper 5, 2. We note that the '123 Patent was also involved in IPR2020-01602, where our final decision holds that Petitioner did not show that the challenged claims are unpatentable. *Philip Morris Products, S.A. v. RAI Strategic Holdings, Inc.*, IPR2020-01602, Paper 32 (PTAB Mar. 30, 2022).

D. The '268 Patent (Ex. 1001)

The '268 Patent describes and claims a tobacco-containing, electrically-powered smoking article. Ex. 1001, codes (54), (57), 1:19–20, 32:41–42, 34:13–14 (preamble of independent claims 1 and 16). One objective is “to provide a smoking article that provides a smoker with an ability to enjoy using tobacco without the necessity of burning any significant amount of tobacco.” *Id.* at 4:27–29.

² The '268 Patent and the '123 Patent both claim the benefit of Application No. 11/550,634, filed October 18, 2006, through a series of continuation and/or division applications. The Board denied institution of an *inter partes* review in IPR2020-00919. *Philip Morris Products, S.A. v. RAI Strategic Holdings, Inc.*, IPR2020-00919, Paper 9 (PTAB Nov. 16, 2020).

A first embodiment is depicted in Figure 1, reproduced below:

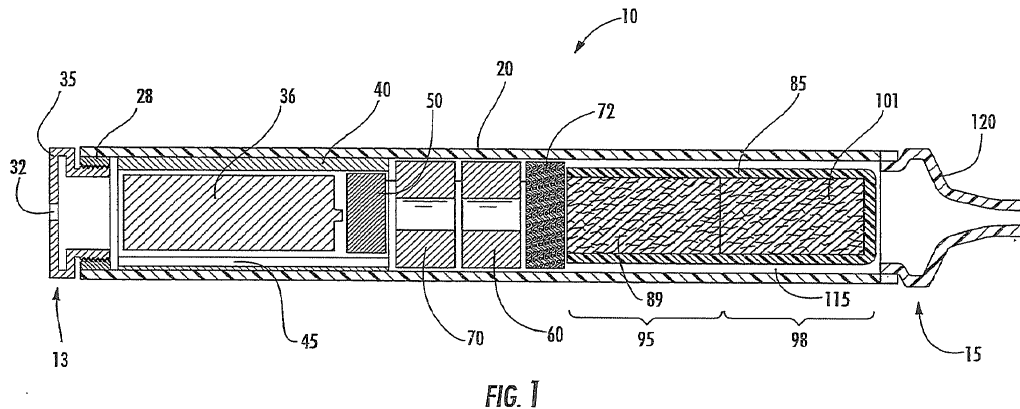


Figure 1 of the '268 Patent is a longitudinal cross-sectional view of an electrically powered, tobacco-containing smoking article. Ex. 1001, 8:28–30, 19:31–35.

As shown in Figure 1, smoking article 10 includes outer container or housing 20 that is generally tubular in shape and has distal end 13 and mouth-end 15. Ex. 1001, 19:40–44, 19:53–55. “[T]he mouth-end comprises an opening adapted for egress of an aerosol generated within the smoking article and the distal end comprises an opening adapted for intake of air into the smoking article 10.” *Id.* at 19:55–58. Within outer container 20 is electric power source 36, such as a battery. *Id.* at 20:6–7.

As shown in Figure 1, smoking article 10 includes controller 50 having microchips that provide control of time of operation, current, and electrical resistance heat generation. Ex. 1001, 20:27–28, 20:31–36, Figs. 4, 5. Smoking article 10 also includes sensor 60 for sensing draw, i.e., intake of air by the user of the smoking article. *Id.* at 20:43–46, 20:61–63. Controller 50 and sensor 60 are powered by battery 36 and function in concert as a puff-actuated controller for regulating the flow of current

through the resistance heating elements. *Id.* at 20:36–37, 20:53–54, 20:57–61.

Smoking article 10 of Figure 1 includes electrical resistance heating elements 70, 72, which are configured to allow airflow through the heating elements. Ex. 1001, 21:10–11, 21:21–22. First electrical resistance heating element 70 heats air drawn through the smoking article from distal end 13 of outer housing 20. *Id.* at 21:11–15. Second electrical resistance heating element 72 heats an aerosol-forming material supported by or in close proximity to the heating element. *Id.* at 21:26–40. Aerosol-forming material can be transferred to the heating element by the wicking action of a high surface area absorbent material that either forms the heating element or is in close proximity to the heating element. *Id.*

Smoking article 10 also includes cartridge 85, which has upstream segment 95 composed of tobacco filler or processed tobacco filler material 89 incorporating aerosol-forming material and downstream segment 98 composed of substrate 101 carrying flavors and/or aerosol-forming material. Ex. 1001, 21:58–59, 21:63–21:1, 22:8–14. The '268 Patent discloses that “smoking article 10 is assembled such that a certain amount of aerosol-forming material and tobacco components can be wicked or otherwise transferred to heating element 72 or the region in close proximity to the heating element.” *Id.* at 22:14–18. As shown in Figure 1, “extreme mouth end region of cartridge 85 is sealed, and as such, tobacco components and aerosol-forming material have a tendency to travel upstream towards the resistance heater 72.” *Id.* at 22:19–22. Mouth-end piece 120 is “typically removable” and can be maintained in place by friction fit or complementary threaded screw mechanisms on the mouth-end piece and outer housing. *Id.* at 23:63–24:1.

Another embodiment is depicted in Figure 2, reproduced below:

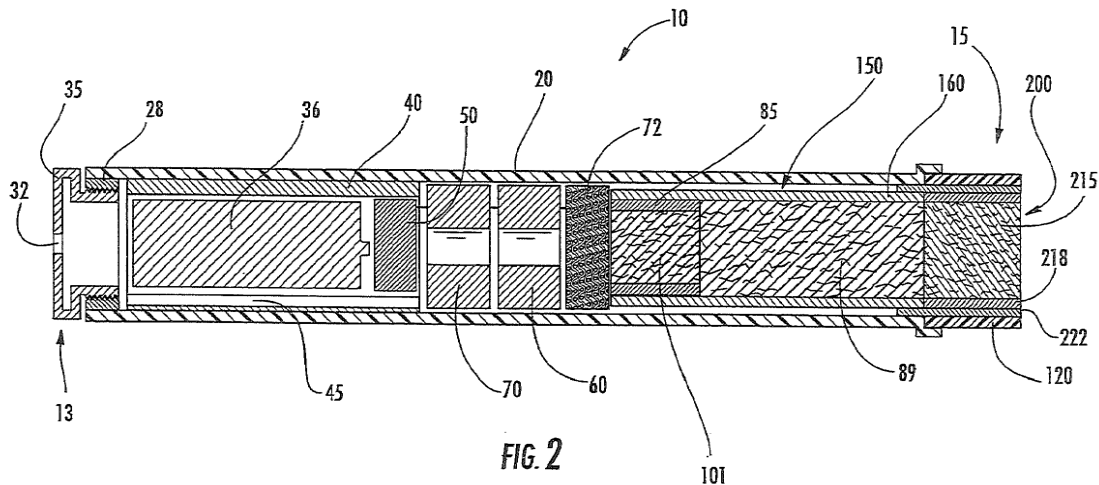


Figure 2 of the '268 Patent is a longitudinal cross-sectional view of an electrically powered, tobacco-containing smoking article. Ex. 1001, 8:28–30, 24:42–43. According to the '268 Patent, the smoking article of Figure 2 has “certain components comparable to” the Figure 1 embodiment; “[h]owever, the smoking article is adapted to incorporate a cigarette 150.” *Id.* at 24:45–49.

The '268 Patent discloses that cigarette 150 has a charge or roll of tobacco 89 wrapped in wrapping material 160 so as to form a generally cylindrical cigarette rod or tobacco rod. Ex. 1001, 24:50–53, 25:1–3. According to the '268 Patent, “wrapping material 160 is formed into a generally tubular shape, and the tobacco is positioned within the hollow region within that tube,” and “wrapping material 160 is formed such that each end of the tobacco rod is open to expose the tobacco contained therein, and to allow the passage of drawn air therethrough.” *Id.* at 25:3–9.

As shown in Figure 2, cigarette 150 has a type of cartridge 85 at its distal end within the wrapping material 160 and in fluid communication with

the tobacco rod. Ex. 1001, 25:21–24. Cartridge 85 contains aerosol-generating material composition 101 and has a tubular shape with open ends that allow air to flow through the cartridge. *Id.* at 25:24–25, 25:31–32.

The '268 Patent describes an alternative embodiment in which cartridge 85 is not incorporated within cigarette 150 and the region of cigarette 150 that is wrapped in paper wrapper 160 is composed entirely of tobacco material and aerosol-forming materials, which are not necessarily arranged in a segmented fashion. *Id.* at 26:43–52.

As shown in Figure 2, cigarette 150 has filter element 200 composed of filter material 215 wrapped in circumscribing plug wrap 218 and attached to the tobacco rod using tipping material 222 that circumscribes the length of the filter element 200 and an adjacent region of the tobacco rod at its downstream end. Ex. 1001, 26:53–61. The '268 Patent discloses that tubular mouth-end piece 120 can act as a support for filter element 200 of cigarette 150, and can be removably attached to outer housing 20. *Id.* at 26:62–27:7.

Another embodiment is depicted in Figure 3, reproduced below:

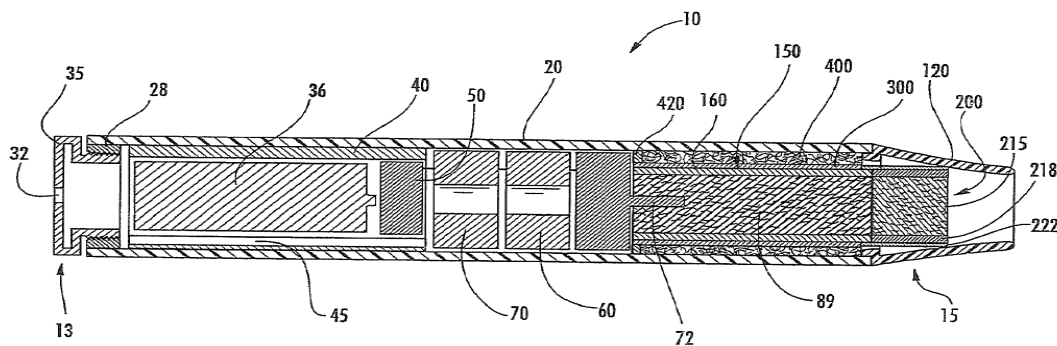


FIG. 3

Figure 3 of the '268 Patent is a longitudinal cross-sectional view of an electrically powered, tobacco-containing smoking article. Ex. 1001, 8:28–30, 27:28–29. According to the '268 Patent, the smoking article of

Figure 3 has “certain components comparable to” the Figure 1 embodiment and is “adapted to incorporate a type of cigarette 150.” *Id.* at 27:30–35.

In the Figure 3 embodiment, smoking article 10 has tube-shaped third resistance heating element 300 that fits snugly around a portion of tobacco rod 89 and provides heat to at least a portion of tobacco 89 of cigarette 150. Ex. 1001, 27:49–51, 27:63–28:2. First, second, and third resistance heating elements 70, 72, 300 can each be separately controlled in response to timing mechanisms, switching mechanisms, and/or sensing mechanism 60 so that each resistance heating element can provide differing amounts of heat and during differing periods. *Id.* at 28:6–26. As shown in Figure 3, second resistance heating element 72 can have an elongated portion that extends into tobacco segment 89 and is “in close contact with a significant amount of substrate and aerosol-forming material within the tobacco.” *Id.* at 28:28–35. As shown in Figure 3, thermally insulated region 400 circumscribes resistance heating element 300 of smoking article 10. *Id.* at 28:36–40.

E. Illustrative Claim

The '268 Patent includes 17 claims. Claims 16 and 17 are challenged in the Petition. Claim 16 is representative of the challenged subject matter, and is reproduced below:

16. A tobacco-containing, electrically-powered smoking article comprising:

(a) a tubular outer housing having a mouth-end and an end distal to the mouth-end, the housing comprising an opening adapted for intake of air into the smoking article;

(b) an electrical power source within the outer housing;

(c) a controller adapted for regulating current flow through the heater;

(d) a rod-shaped carrier device removably engaged with the mouth-end of the outer housing and comprising a tubular mouth-end piece and a tubular cartridge with two open ends allowing air to flow therethrough, wherein the cartridge includes a tobacco material and an aerosol-generating material; and

(e) an electrical resistance heater in contact with the tobacco material and the aerosol-generating material and adapted for heating at least a portion of the tobacco material and the aerosol-generating material.

Ex. 1001, 34:13–31.

F. Asserted Challenges and Evidence

Petitioner raises the following challenges to patentability:

Claim(s) Challenged	35 U.S.C.	Reference(s)
16	§ 103(a) ³	Morgan, ⁴ Collins, ⁵ Adams, ⁶ Brooks ⁷
17	§ 103(a)	Morgan, Collins, Adams, Brooks, Counts-962 ⁸
16, 17	§ 103(a)	Counts-962, Brooks

Petitioner relies on a Declaration of Seetharama C. Deevi, Ph.D. Ex. 1003 (“Deevi Declaration”).

³ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. § 103, effective March 16, 2013. Because the ’268 Patent has an effective filing date before this date, we refer to the pre-AIA version of § 103. Ex. 1001, code (60).

⁴ Ex. 1005, US 5,249,586, issued Oct. 5, 1993 (“Morgan”).

⁵ Ex. 1006, US 5,865,185, issued Feb. 2, 1999 (“Collins”).

⁶ Ex. 1007, US 2007/0102013 A1, published May 10, 2007 (“Adams”).

⁷ Ex. 1009, US 4,947,874, issued Aug. 14, 1990 (“Brooks”).

⁸ Ex. 1008, US 5,144,962, issued Sept. 8, 1992 (“Counts-962”).

II. ANALYSIS

A. Legal Standards

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)); *see also* 37 C.F.R. § 42.104(b) (requiring a petition for *inter partes* review to identify how the challenged claim is to be construed and where each element of the claim is found in the prior art patents or printed publications relied upon).

A patent claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved based on underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and, when presented, (4) objective evidence of nonobviousness, i.e., secondary considerations.⁹ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

Additionally, the obviousness inquiry typically requires an analysis of “whether there was an apparent reason to combine the known elements in

⁹ The parties have not asserted or directed our attention to any objective evidence of nonobviousness in this proceeding.

the fashion claimed by the patent at issue.” *KSR*, 550 U.S. at 418 (*citing In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (requiring “articulated reasoning with some rational underpinning to support the legal conclusion of obviousness”)). Petitioner cannot satisfy its burden of proving obviousness by employing “mere conclusory statements,” but “must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016).

B. Level of Ordinary Skill in the Art

Petitioner contends that a person of ordinary skill in the art (“POSA”) at the time of the invention:

would have had a Bachelor’s degree in mechanical engineering, electrical engineering, chemistry, or physics, or a related field, and three to four years of industry experience, or a Master’s degree in mechanical engineering, electrical engineering, chemistry, or physics, or a related field, and one to two years of industry experience. Such a POSA would have been familiar with electrically powered smoking articles and/or the components and underlying technology used therein.

Pet. 14 (citing Ex. 1003 ¶¶ 26–30). Patent Owner accepts Petitioner’s definition for purposes of this proceeding. PO Resp. 13. We apply Petitioner’s definition of a POSA, which is undisputed by Patent Owner, supported by Dr. Deevi’s testimony (Ex. 1003 ¶ 28), and consistent with the scope and content of the ’268 Patent and the asserted prior art.

C. Claim Construction

In an *inter partes* review, we apply the same claim construction standard as would be used by a district court to construe a claim in a civil action involving the validity or infringement of a patent. 37 C.F.R.

§ 42.100(b). Under that standard, claim terms are given their ordinary and customary meaning, as would have been understood by a person of ordinary skill in the art at the time of the invention, in light of the language of the claims, the specification, and the prosecution history of record. *Id.*; *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–19 (Fed. Cir. 2005) (en banc); *Thorner v. Sony Comput. Entm’t Am. LLC*, 669 F.3d 1362, 1365–66 (Fed. Cir. 2012).

The Petition is based on alternative constructions for the terms “controller,” “removably engaged,” and “a rod-shaped carrier device . . . comprising a tubular mouth-end piece and a tubular cartridge with two open ends.” Pet. 14–22. Petitioner relies on Patent Owner’s infringement contentions in the related litigation as support for its broad constructions of these terms, as well as for dependent claim 17. Pet. 15, 18–20, 58 (citing Exs. 1025, 1032).¹⁰ Patent Owner states that it “does not believe that any terms in the claims of the ’268 patent require explicit construction.” PO Resp. 13. In view of the Patent Owner Response, Petitioner states that the Board “is not required to reach” any of the claim constructions issues addressed in the Petition. Pet. Reply 1 n.1.

We determine that no claim term requires express construction for purposes of resolving the controversy. *Realtime Data LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. Eng’g, Inc.*, 200 F.3d 795, 803) (Fed. Cir. 1999))).

¹⁰ Exhibit 1025 is Patent Owner’s infringement chart for the related ’123 Patent in the International Trade Commission. Exhibit 1032 is Patent Owner’s district court complaint alleging that Petitioner’s IQOS® tobacco stick infringes at least claims 16 and 17.

D. Asserted Obviousness based on Morgan

The Petition challenges claim 16 based on Morgan alone or in combination with Collins, Adams, and Brooks, and challenges claim 17 based on Morgan alone or in combination with Collins, Adams, Brooks, and Counts-962. Pet. 7. Petitioner asserts that “[c]laim 16 is unpatentable under § 103 over Morgan alone, and the other three references are necessary only if Patent Owner argues that the claims should be construed narrowly in one or more separate ways.” Pet. 23. Patent Owner does not contend that the claims should be narrowly construed and does not argue dependent claim 17 separately from claim 16. *See* PO Resp. 13 (asserting that no claim terms require explicit construction). In the Reply, Petitioner reiterates that the challenged claims are unpatentable over Morgan alone and states that the Board does not need to reach the issue of whether a POSA would have combined Morgan with Adams, Brooks, or Collins. Pet. Reply 1.

In view of the foregoing, we consider whether Petitioner has shown that claims 16 and 17 are unpatentable as obvious over Morgan alone. We do not address Petitioner’s contentions under alternative claim constructions. Nor do we address whether a POSA would have combined Morgan with one or more of Adams, Brooks, Collins, and Counts-962.

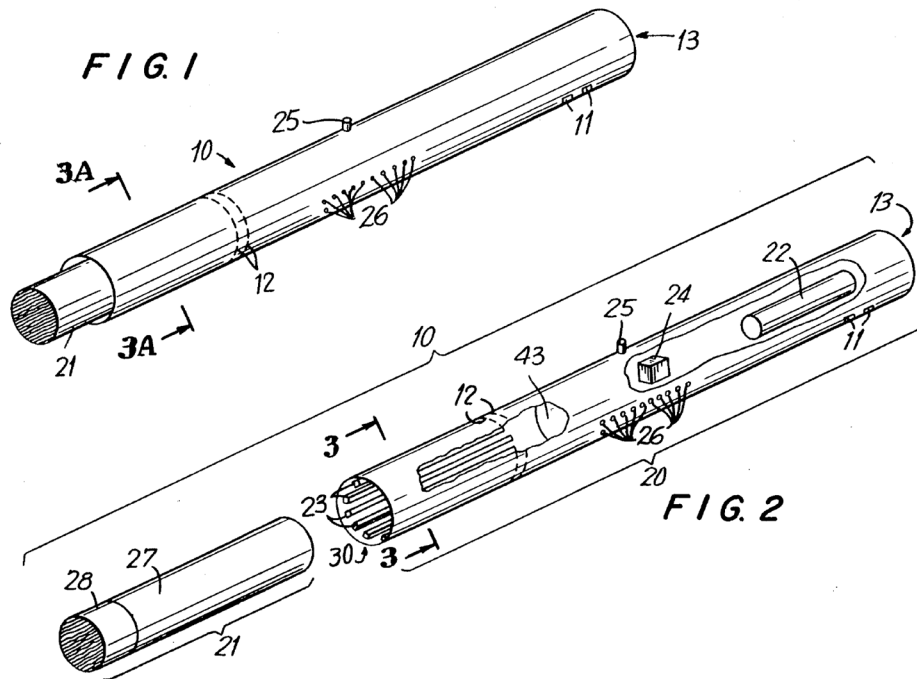
1. Morgan (Ex. 1005)

Morgan relates to electrical smoking articles “in which tobacco flavor media are heated but not burned to release tobacco flavors.” Ex. 1005, 1:11–15. Morgan discloses “a smoking article for delivering to a smoker an inhalable tobacco flavor substance” where the article “can be used, for example, to simulate a cigarette.” *Id.* at 2:17–19, 3:9–11. According to Morgan, the electrical article includes:

a removable disposable portion which includes the tobacco flavor medium and, if desired, a filter, and a reusable “permanent” portion including a source of electrical energy, a set of reusable heating elements, and control circuitry for energizing the heaters in an appropriate sequence, in response to manual actuation or puff-induced actuation.

Id. at 3:13–22.

Figures 1 and 2 of Morgan are reproduced below.

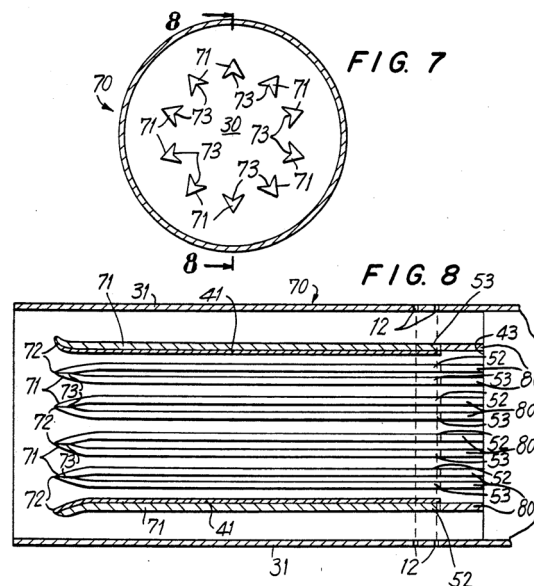


Morgan Figures 1 and 2 depict an electrical smoking article with a perspective view in Figure 1 and a partially fragmentary, exploded perspective view in Figure 2. Ex. 1005, 2:42–45. Electrical smoking article 10 includes reusable or permanent portion 20 and disposable filter/flavor portion or cartridge 21 received in cavity 30 at the mouth end of portion 20. *Id.* at 4:44–47. Reusable portion 20 includes power source 22, heating elements 23, and control circuit 24. *Id.* at 4:48–50, 4:56–59. Disposable portion 21 includes flavor segment 27 and filter segment 28. *Id.* at 5:26–28.

Morgan discloses that flavor segment 27 includes tobacco and an aerosol precursor such as glycerine. Ex. 1005, 5:35–42. According to Morgan, “[i]t is desirable to add an aerosol precursor to deliver the tobacco flavor substance as an aerosol, so that when the consumer exhales the tobacco flavor substance, the visible condensed aerosol may mimic the appearance of cigarette smoke.” *Id.* at 5:42–46.

In the embodiment shown in Figures 1 and 2, heating elements 23 linearly extend from the mouth end to the rod end of cavity 30 and are bowed out from the wall of the cavity so that they “press into flavor segment 27 for intimate thermal contact.” Ex. 1005, 5:6–11, 5:47–53.

Figures 7 and 8 of Morgan are reproduced below.



Morgan Figures 7 and 8 depict an alternative heater embodiment with a radial cross-sectional view in Figure 7 and a longitudinal cross-sectional view in Figure 8. Ex. 1005, 2:62–68. As shown in Figures 7 and 8, heating elements 71 are spaced from the wall of cavity 30, and each has sharp tip 72 and fold 73 to increase their rigidity. *Id.* at 5:46–50. Morgan discloses that, “[i]n this way, heating elements 71 actually pierce and extend into

disposable portion 21 to provide the desired intimate thermal contact.” *Id.* at 6:50–52.

2. *Claim 16*

a) *Preamble*

The preamble of claim 16 recites “[a] tobacco-containing, electrically powered smoking article.” Ex. 1001, 34:14–15.¹¹

Petitioner contends that Morgan discloses the preamble of claim 16. Pet. 30. More particularly, Petitioner asserts that Morgan discloses “an electrical smoking article” in which “a replaceable tobacco flavor medium is electrically heated by a set of permanent reusable heaters to evolve inhalable flavors or other components in vapor or aerosol form.” Pet. 30 (citing Ex. 1003 ¶¶ 124–126; Ex. 1005, code (57), 3:9–11). Patent Owner does not dispute that Morgan discloses the preamble of claim 16. We find that Petitioner’s contention is persuasive and supported by the evidence cited in the Petition, as summarized above.

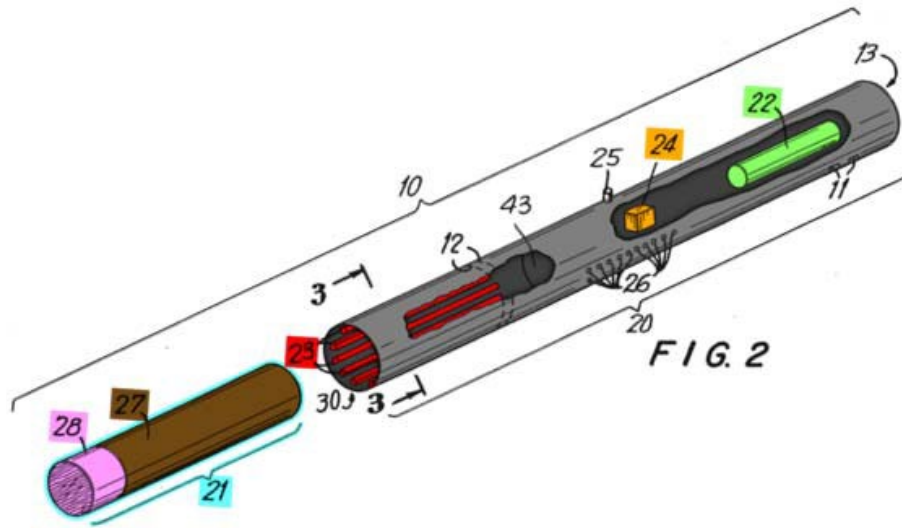
b) *Element 16(a)*

Claim element 16(a) recites “a tubular outer housing having a mouth-end and an end distal to the mouth-end, the housing comprising an opening adapted for intake of air into the smoking article.” Ex. 1001, 34:16–18.

Petitioner contends that Morgan discloses claim element 16(a). Pet. 31–32. Petitioner directs us to Morgan’s disclosure of a smoking article having a “reusable or ‘permanent’ portion 20 and disposable filter/flavor portion or cartridge 21 which is received in a cavity 30 at the mouth end of portion 20.” Pet. 31 (citing Ex. 1005, 4:44–47). Petitioner contends that

¹¹ Neither party argues that the preamble should be construed as limiting, and we do not reach the issue.

Morgan's permanent portion 20 has a tubular outer housing, a mouth-end (Morgan's "mouth end of portion 20"), and an end distal to the mouth-end (Morgan's "far end 13"). *Id.* (citing Ex. 1005, 4:44–47, 5:1–5). Petitioner illustrates its contention with the following colored version of Morgan Figure 2:



Pet. 31. Petitioner's colored version of Morgan Figure 2 depicts an electrical smoking article, including permanent portion 20 having a grey tubular outer housing, a mouth end with cavity 30, and far end 13. Ex. 1005, 4:44–47, 5:1–5.

Petitioner contends that Morgan discloses "an opening adapted for intake of air into the smoking article." Pet. 31. Petitioner directs us to Morgan's disclosure of "[p]erforations 12 . . . in the wall of portion 20," which "allow outside air to be drawn in during puffing" or openings (not shown in Figure 2) at far end 13 of portion 20. *Id.* at 31–32 (citing Ex. 1005, 5:1–5; Ex. 1003 ¶¶ 127–132).

Patent Owner does not dispute that Morgan discloses claim element 16(a). We find that Petitioner's contention is persuasive and supported by the evidence cited in the Petition, as summarized above.

c) Element 16(b)

Claim element 16(b) recites “an electrical power source within the outer housing.” Ex. 1001, 34:19.

Petitioner contends that Morgan discloses claim element 16(b). Pet. 32. Referring to Morgan Figure 2, Petitioner asserts that “Morgan’s permanent portion 20 has an outer housing, and within that outer housing, Morgan’s smoking article includes ‘power source 22, which could include a battery.’” Pet. 32 (quoting Ex. 1005, 4:48–50; citing *id.* at 4:42–5:5; Ex. 1003 ¶¶ 59, 129–130, 133, 134).

Patent Owner does not dispute that Morgan discloses claim element 16(b). We find that Petitioner’s contention is persuasive and supported by the evidence cited in the Petition, as summarized above.

d) Element 16(c)

Claim element 16(c) recites: “a controller adapted for regulating current flow through the heater.” Ex. 1001, 34:20–21.

Petitioner contends that Morgan discloses claim element 16(c). Pet. 32–34. More particularly, Petitioner contends that Morgan discloses control circuit 24 within the tubular outer housing of its smoking article. Pet. 33 (citing Ex. 1005, Fig. 2 (item 24)). Petitioner directs us to Morgan’s disclosure that “[p]ower source 22 provides power for heating elements 23, which are energized under the control of control circuit 24, which is in turn actuated by pushbutton 25 or by a puff-actuated sensor.” Pet. 33 (citing Ex. 1003 ¶¶ 97, 98, 135–143; Ex. 1005, 4:48–67 Fig. 2 (item 24)); Ex. 1005, 4:56–59.

According to Petitioner, Morgan describes “suitable control circuitry” by incorporating U.S. Patent No. 5,060,671 (“Counts-671,” Ex. 1013) by

reference. Pet. 33 (citing Ex. 1005, 1:15–41, 3:13–25, 4:62–67). Petitioner directs us to Counts-671’s disclosure that “control circuit 32 . . . applies current to the selected heater for a predetermined duration that is long enough to produce sufficient flavor-containing substance for an average puff, but not so long that the charge of flavor generating medium can begin to burn.” Pet. 33 (citing Ex. 1003 ¶¶ 138, 139; Ex. 1005, 1:28–41, 2:44–49, 4:44–5:29, 10:20–12:27, Fig. 10); Ex. 1013, 10:21–29. Petitioner contends that the ’268 Patent describes circuits with similar functionality. Pet. 34 (citing Ex. 1001, 30:30–32:26).

Patent Owner does not dispute that Morgan discloses claim element 16(c). We find that Petitioner’s contention is persuasive and supported by the evidence cited in the Petition, as summarized above.

e) Element 16(d)

Claim element 16(d) recites “a rod-shaped carrier device removably engaged with the mouth-end of the outer housing and comprising a tubular mouth-end piece and a tubular cartridge with two open ends allowing air to flow therethrough, wherein the cartridge includes a tobacco material and an aerosol-generating material.” Ex. 1001, 34:22–27.

Petitioner contends that Morgan discloses claim element 16(d). Pet. 35–48. Referring to its annotated version of Morgan Figure 2 (reproduced above), Petitioner asserts that:

Morgan’s “disposable portion 21” (circled in blue) corresponds to the claimed rod-shaped carrier device. It includes a tubular mouth-end piece (“filter segment 28,” pink) and a tubular cartridge with two open ends which contains a tobacco material and an aerosol-generating material (“flavor segment 27,” which includes “tobacco” and an “aerosol precursor”), and it is removably engaged with its outer housing.

Pet. 35–36 (citing Ex. 1003, ¶¶ 97, 98, 144–151; Ex. 1005, 4:44–5:46, Fig. 2).

Petitioner contends that “Morgan’s cigarette-type device (disposable portion 21) is “removably engaged with the mouth-end of the tubular outer housing” of Morgan’s permanent portion 20 for multiple reasons.”

Pet. 36–37. First, Petitioner asserts that “Morgan’s cigarette can be positioned within and removed from the mouth-end of that outer housing.”

Pet. 37 (citing Ex. 1003 ¶¶ 146–150; Ex. 1005, Figs. 1, 2; 3:9–37, 4:43–47, 5:47–6:2; 7:55–62). For example, Petitioner directs us to claims 3 and 4 of Morgan, which disclose that the “removable portion” is “substantially cylindrical” and has an end that protrudes from the cavity and provides “a grip for [the] smoker for insertion and removal of [the removable] portion.”

Pet. 37; Ex. 1005, 7:55–62 (claims 3 and 4). Petitioner also directs us to Morgan’s disclosure of an “ejection mechanism” for removing a spent portion 21 from cavity 30. Pet. 37; Ex. 1005, 5:66–6:2.

Second, Petitioner discusses Morgan’s heater embodiment shown in Figures 7 and 8 in which the heater elements “actually pierce and extend into disposable portion 21.” Pet. 38 (citing Ex. 1005, 6:46–63, Figs. 7, 8); Ex. 1005, 6:50–52. According to Petitioner, a POSA would have understood that, in this embodiment, the heaters “fit snugly into the cavity at the end of the tubular outer housing to help ensure the cigarette is inserted squarely and is not inadvertently disengaged during use.” Pet. 38 (citing Ex. 1003 ¶¶ 148–150).

Third, Petitioner relies on Dr. Deevi’s testimony as follows:

In addition, the heaters themselves would help secure the cigarette in the device due to friction between the tobacco and the blades themselves, and also between the outside of the cigarette and the inner walls of the outer housing. The cigarette

would tend to expand as the blades enter the tobacco area, but . . . the inner walls of Morgan’s outer housing would prevent that expansion. As a result, the cigarette would press against the inner walls, providing a snug fit with the housing.

Ex. 1003 ¶ 150; Pet. 38. We find that the above-quoted testimony applies to the heater embodiment of Morgan Figures 7 and 8 in which the heater elements pierce and extend into disposable portion 21. Ex. 1005, 6:46–52.

Petitioner contends that “Morgan’s disposable portion 21 comprises a ‘tubular mouth-end piece,’ namely ‘filter segment 28.’” Pet. 39. Petitioner directs us to Morgan’s disclosure that “[f]ilter segment 28 is preferably a conventional cellulose acetate filter segment, and preferably is very short, being provided mostly for the sake of appearance and to give article 10 a ‘mouth feel’ similar to a conventional cigarette.” Ex. 1005, 5:28–33; Pet. 39 (citing Ex. 1003, ¶¶ 152–153; Ex. 1005, 5:26–33, 10:19–21 (claim 37)). According to Petitioner, a “POSA would have understood that Morgan’s filter teaches the claimed ‘tubular mouth-end piece’” because “a smoker draws air into his/her mouth through Morgan’s filter.” Pet. 39–40 (citing Ex. 1001, 19:7–12; Ex. 1003 ¶¶ 153–155). To reinforce that the recited “tubular mouth-end piece” can be a filter element, Petitioner relies on Crooks,¹² which the ’268 Patent incorporates by reference for its disclosure of “mouth-end pieces and cigarette-type filter elements.” Pet. 40; Ex. 1001, 24:4–10. Crooks discloses that a preferred mouth-end piece has the form of a filter element. Ex. 1014 ¶¶ 9, 148–151.

Petitioner contends that Morgan teaches “a tubular cartridge with two open ends allowing air to flow therethrough, wherein the cartridge includes a tobacco material and an aerosol-generating material,” as claim element 16(d)

¹² Ex. 1014, US 2007/0215167, published September 20, 2007 (“Crooks”).

recites. Pet. 45. Petitioner asserts that “Morgan teaches this claim element because its flavor segment comprises a tobacco material and an aerosol-generating material (glycerin), is surrounded by wrapping paper, and is open on both ends to allow air to flow through.” *Id.* Petitioner contends that Morgan’s “flavor segment 27” is open on both ends to allow air to flow through when the user draws on the filter end of “disposable portion 21.” Pet. 45–46 (citing Ex. 1003 ¶¶ 158–162; Ex. 1005, 5:25–6:7, Fig. 2).

Petitioner directs us to Morgan’s disclosure that “[f]lavor segment 27 can be any material that liberates flavors when hot air passes over or through it” and is preferably “a cylindrical portion of an extruded open-cell foamed tobacco product of the kind described in” the ’950 patent,¹³ “except that an aerosol precursor such as glycerine is added to the composition . . . to deliver the tobacco flavor substance as an aerosol.” Pet. 46 (quoting Ex. 1005, 5:34–46). The ’950 patent discloses a foamed, tobacco-containing smoking article having “a porous structure” that permits “the passage of smoke through the article to the smoker,” where the foamed article has a “substantially cylindrical shape” and is “processed into completed smoking articles by wrapping with cigarette paper or the like, cutting to desired lengths, and, optionally, attaching a filter.” Ex. 1015, code (54), 4:34–38, 8:47–55; *see* Pet. 46–47 (citing Ex. 1003 ¶¶ 158–162; Ex. 1015, 4:34–47, 4:60–5:3, 8:45–55).

Petitioner also directs us to Morgan’s disclosure that “[t]he parameters of [its] heaters are chosen to allow delivery of an effective amount of tobacco flavor substance—e.g., an aerosol containing tobacco flavors—to

¹³ Ex. 1015, US 4,510,950, issued April 16, 1985 (“the ’950 patent”), which Morgan incorporates by reference. Ex. 1005, 5:35–42.

the consumer” and Morgan’s claims that require, among other things, “extruded tobacco material” (claim 10), “tobacco foam material” (claim 11), “open-cell [tobacco] foam” (claim 12), “tobacco” (claim 15), “aerosol-forming material” (claims 13, 14, 16–19, 22–24), and “an aerosol comprising tobacco components” (claims 13 and 20). Pet. 47; Ex. 1005, 3:58–61, 8:27–68; *see also* Ex. 1003 ¶¶ 97–100, 160–162 (cited portions of Deevi Declaration).

According to Petitioner, Morgan’s “flavor segment 27” is “tubular . . . with two open ends allowing air to flow therethrough,” as claim element 16(d) recites. Pet. 47. Petitioner relies on Morgan’s Figures 1 and 2 as showing the requisite tubular shape. *Id.* Petitioner asserts that “air flows through Morgan’s disposable portion 21 to the user.” Pet. 47–48 (citing Ex. 1003 ¶¶ 147, 160–162; Ex. 1005, codes (54), (57), 2:17–19, 5:34–35, 5:42–46).

Patent Owner does not dispute that Morgan discloses claim element 16(d). We find that Petitioner’s contention is persuasive and supported by the evidence cited in the Petition, as summarized above.

f) Element 16(e)

Claim element 16(e) recites “an electrical resistance heater in contact with the tobacco material and the aerosol-generating material and adapted for heating at least a portion of the tobacco material and the aerosol-generating material.” Ex. 1001, 34:28–31.

Petitioner contends that Morgan discloses claim element 16(e). Pet. 52–55 (citing Ex. 1003 ¶¶ 172–175; Ex. 1005, 2:26–32, 3:66–68, 4:3–5, 4:9–15, 7:38–43 (claim 1), 9:1–11 (claims 25–27)). Petitioner relies on Morgan’s Figures 7 and 8, which “illustrate sharp heating elements 71 that

‘pierce and extend into disposable portion 21 to provide [a] desired **intimate thermal contact**’ with tobacco and aerosol-generating material.” Pet. 54 (citing Ex. 1005, 6:46–52, Figs. 7, 8). Petitioner contends that Morgan’s heaters are designed to be non-reactive with the tobacco and aerosol precursors they heat. Pet. 54–55 (citing Ex. 1003 ¶¶ 174, 175; Ex. 1005, 4:18–39, 5:35–42).

Patent Owner argues:

the POSA would not be motivated to use the heaters of Morgan Figures 7 and 8, and the Petition does not explain why the POSA would allegedly select the heaters of this embodiment instead of the heaters used in Morgan’s other embodiments, which do not disclose the “in contact with” limitation.

PO Resp. 27; *see also id.* at 1–2 (similar argument). Patent Owner argues that Morgan describes multiple embodiments having different types of heaters, that the Petition does not explain why the POSA would have selected the heaters of Morgan’s Figures 7 and 8, that Collins teaches away from the use of Morgan’s Figures 7 and 8 heaters, and that Petitioner’s failure to justify the selection of Morgan’s Figures 7 and 8 heaters is fatal to Petitioner’s case. *Id.* at 14–19, 27–45.

After considering the parties’ arguments and evidence, we are persuaded by Petitioner’s showing for claim element 16(e). Pet. 52–55. Petitioner shows persuasively that Morgan discloses all limitations of claim element 16(e), and Patent Owner does not dispute this fact. More particularly, there is no dispute, and we find, that Morgan’s sharp-tipped heating elements 71 shown in Figures 7 and 8 are “an electrical resistance heater in contact with the tobacco material and the aerosol-generating material” and that heating elements 71 are “adapted for heating at least a portion of the tobacco material and the aerosol-generating material,” as

claim element 16(e) recites. Our finding is supported by Morgan’s disclosure quantifying the electrical resistance of the heating elements, which Petitioner cites. Ex. 1005, 4:9–15, 9:1–6 (claims 25, 26); Pet. 53.

Petitioner shows persuasively that Morgan discloses the “in contact” limitation of claim element 16(e) by describing heaters that “protrude from the end of the cavity, so that they actually pierce and extend into the disposable portion” and describing Figures 7 and 8 as depicting “heating elements 71 that actually pierce and extend into disposable portion 21 to provide the desired intimate thermal contact.” Ex. 1005, 3:34–37, 6:50–52, Figs. 7, 8; Pet. 54. Patent Owner does not dispute that Morgan discloses the “in contact” limitation when describing Figures 7 and 8. *See* PO Resp. 37–38 (discussing fixture contamination problem “when the heating elements are in contact with tobacco flavor material, as they are in Morgan’s Figures 7 and 8”). As discussed above for claim element 16(d), there is no dispute that Morgan’s disposable portion 21 contains tobacco material and aerosol-generating material and that these materials are heated by heating elements 71. Ex. 1005, 3:58–61, 5:26–28, 5:34–46, 6:46–52, 8:27–68 (claims 10–24).

We have considered Patent Owner’s argument “the POSA would not be motivated to use the heaters of Morgan Figures 7 and 8, and the Petition does not explain why the POSA would allegedly select the heaters of this embodiment instead of the heaters used in Morgan’s other embodiments.” PO Resp. 27. In our view, however, Petitioner has met its burden by directing us to Morgan’s Figures 7 and 8, which show an “alternative heater embodiment,” i.e., one that can be used instead of Morgan’s heating elements 23 in Figure 2. Ex. 1005, 2:62–68, 3:28–37, 6:46–52; Pet. 54.

The Petition does not rely on combining elements of different smoking article embodiments, as Patent Owner suggests. Pet. 54; PO Resp. 1–2, 27, 31. Morgan’s Figures 7 and 8 show an “alternative *heater* embodiment,” not an alternative embodiment of the entire electrical smoking article. Ex. 1005, 2:62–68 (emphasis added). Morgan’s description of Figures 7 and 8 and the figures themselves support our finding. *Id.* at 6:46–52, Figs. 7, 8. Morgan describes Figures 7 and 8 by stating that “heating elements 71 are spaced somewhat further from the wall of cavity 30” and have “a somewhat sharper ‘V’ tip 72, as well as fold 73 to increase their rigidity.” *Id.* This description compares heating elements 71 of Figures 7 and 8 to heating elements 51 of Figures 5 and 6, which show a first “alternative heater embodiment,” i.e., another one that can be used instead of Morgan’s heating elements 23 in Figure 2. *Id.* at 2:54–68 (briefly describing Figures 5–8); *id.* at 6:31–34 (describing heater embodiment of Figures 5 and 6); *id.* at 6:46–50 (describing heater embodiment of Figures 7 and 8).

Morgan states that embodiment 50 shown in Figures 5 and 6 “is identical to embodiment 10” shown in Figures 1–4 “except for the arrangement of heating elements 51.” Ex. 1005, 6:27–30. Although Morgan does not explicitly make this statement about Figures 7 and 8, Morgan does describe Figure 7 as “a radial cross-sectional view similar to Figs. 3 and 5 of the electrical smoking article of the invention, showing another alternative heater embodiment.” *Id.* at 2:62–65; *see also id.* at 2:46–48 (“FIG. 3 is a radial cross sectional view of the electrical smoking article of FIGS. 1 and 2”), 2:56–58 (“FIG. 5 is a radial cross-sectional view similar to FIG. 3 of the electrical smoking article of the invention showing an alternative heater embodiment.”). We find that embodiment 70 shown in Figures 7 and 8 is identical to embodiment 10 shown in Figures 1–4 except for the

arrangement of heating elements 71. Our finding is based on Morgan's description of Figures 7 and 8 and the figures themselves, including Morgan's use of the same names and reference numerals to identify features that are common to embodiment 10 in Figures 1–4 and embodiment 70 in Figures 7 and 8. For example, in both cases, Morgan refers to cavity 30 and disposable portion 21. *Compare* Ex. 1005, 6:46–54 (describing Figures 7 and 8), *with id.* at 4:42–47 (describing Figures 1–4, including disposable portion 21 and cavity 30 of permanent portion 20). Like Morgan's Figures 2 and 3, Morgan's Figure 8 uses reference numeral 12 to identify perforations in the wall of portion 20 and reference numeral 31 to identify cigarette wrapping paper covering portion 20. *Compare id.* at Figs. 2, 3, *with id.* at Fig. 8; *see also id.* at 4:67–5:5 (describing perforations 12 and cigarette wrapping paper 31).

We also find it significant that, like Morgan's Figures 4 and 6, Morgan's Figure 8 shows only “the flavor cartridge receiving cavity of the electrical smoking article.” Ex. 1005, 2:52–55, 2:59–61, 2:66–68 (briefly describing Figures 4, 6, and 8). The remainder of permanent portion 20 and disposable portion 21 are not shown in Figures 4, 6, and 8 because these figures show alternative heater configurations, not alternative embodiments of the entire smoking article. *Id.* at 6:27–30, 6:46–52. In Figures 4, 6, and 8, the right side of each figure is cut off by a jagged line, which suggests that the portions of the smoking article not shown in these figures are unchanged from Figure 2, which shows the entire electrical smoking article. *Id.* at 2:44–45. Figures 4, 6, and 8 are longitudinal cross-sectional views taken from Figures 3, 5, and 7, respectively. *Id.* at 2:52–55, 2:59–61, 2:66–68. As discussed above, Figure 7 is described as “similar to FIGS. 3 and 5,” and Figure 5 is described as “similar to FIG. 3,” which is “radial cross-

sectional view of the electrical smoking article of FIGS. 1 and 2.” *Id.* at 2:46–48, 2:56–58, 2:62–65. These descriptions reinforce our finding that Figures 7 and 8 show the same electrical smoking article as Figure 2, except for the arrangement of heating elements.

Patent Owner asserts that Morgan provides “few details . . . about the embodiment 70 of Figures 7 and 8, with the description covering only 17 lines of text.” PO Resp. 19. The reason for the scarcity of details is readily apparent. Morgan’s Figures 7 and 8 merely show an “alternative heater embodiment” for the electrical smoking article (Ex. 1005, 2:62–68, 6:36–62) so it was not necessary to describe the features that were previously described with reference to Figures 1–4 (*id.* at 4:42–6:27). Patent Owner agrees that Morgan’s Figures 7 and 8 show a different heating element arrangement than Morgan’s other two embodiments. PO Resp. 19.

In sum, we are persuaded that Morgan’s Figures 7 and 8 show an alternative heater embodiment and the features of the electrical smoking article other than the heater arrangement are the same as shown in Morgan Figure 2. There was no need for Petitioner to “explain why the POSA would allegedly be motivated to incorporate the heating element of the Figures 7 and 8 embodiment into the smoking article of the Figures 1–4 embodiment,” as Patent Owner argues (PO Resp. 31), because Morgan expressly teaches the combination. Morgan does so by describing Figures 7 and 8 as an “alternative heater embodiment,” which indicates that the remaining features of the smoking article are unchanged from the Figures 1–4 embodiment. Ex. 1005, 2:62–68, 6:46–52. Petitioner did not need “to re-do the work already done in the prior art reference” by showing a motivation to combine claim elements that are “present together in a reference.” *Gen. Elec. Co. v. Raytheon Techs. Corp.*, 983 F.3d 1334, 1352 (Fed. Cir. 2020) (holding “[i]t

does not matter that [petitioner] did not explain why an artisan would be motivated to use each element disclosed in [the prior art reference].”).

Our finding is reinforced by the following passage from Morgan:

The reusable or permanent portion includes a cavity at the mouth end thereof for insertion of the disposable portion. The reusable heaters are disposed in the cavity in such a way that they make thermal contact with the disposable portion when the disposable portion is inserted into the cavity. This can be accomplished by having the heaters protrude from the sides of the cavity and making the disposable portion compressible, so that the heaters press into the material. Alternatively, the heaters can protrude from the end of the cavity, so that they actually pierce and extend into the disposable portion.

Ex. 1005, 3:26–37. The foregoing passage describes two alternative arrangements for providing thermal contact between the heaters and the disposable portion: (1) the heaters protrude from the sides of the cavity and press into the disposable portion; or (2) the heaters protrude from the end of the cavity and pierce and extend into the disposable portion. *Id.* In both cases, the electrical smoking article includes a removable disposable portion that includes a tobacco flavor medium, a reusable permanent portion having a cavity for insertion of the disposable portion, a source of electrical energy, a set of reusable heating elements, and control circuitry for energizing the heaters. *Id.* at 3:14–21, 3:26–28. The first heater/thermal contact alternative is illustrated in Figures 1–4, and the second alternative is illustrated in Figures 7 and 8. *See id.* at 5:6–25, 5:47–53 (describing heating elements 23 shown in Figures 1–4, including thermal contact between heating elements and disposable portion 21); *id.* at 5:46–62 (describing heating elements 71 shown in Figures 7 and 8, including thermal contact between heating elements and disposable portion 21). Petitioner did not need to “explain why the POSA would allegedly select the heaters of Morgan’s Figures 7

and 8,” as Patent Owner argues (PO Resp. 31), because Morgan expressly describes the heater arrangement of Figures 7 and 8 as one alternative.

Patent Owner argues that Petitioner “provides no indication why the heaters of the Figures 7 and 8 embodiment would be preferable to those of the other embodiments.” PO Resp. 34. Patent Owner’s argument is contrary to well-established obviousness law. *Fleming v. Cirrus Design Corp.*, 28 F.4th 1214, 1224 (Fed. Cir. 2022) (“the obviousness inquiry does not require that the prior art combination is the ‘preferred, or the most desirable’ configuration” (quoting *In re Fulton*, 391 F.3d 1195, 1200 (Fed. Cir. 2004))); *Merck & Co., Inc. v. Biocraft Labs., Inc.*, 874 F.2d 804, 807 (Fed. Cir. 1989) (“in a section 103 inquiry, ‘the fact that a specific [embodiment] is taught to be preferred is not controlling, since all disclosures of the prior art, including unpreferred embodiments, must be considered’” (quoting *In re Lamberti*, 545 F.2d 747, 750 (CCPA 1976))). There was no need for Petitioner to compare Morgan’s various heater embodiments or indicate why the Figures 7 and 8 embodiment would be preferable because *all* disclosed embodiments must be considered when assessing obviousness. *Merck*, 874 F.2d at 807.

We have also considered Patent Owner’s argument that “Collins teaches away from the use of Morgan’s Figures 7 and 8 heaters” that are in contact with tobacco flavor material. PO Resp. 37–42 (citing Ex. 1005, 3:34–37, 6:8–11, 6:50–52, Figs. 7, 8; Ex. 1006, 2:7–13, 2:18–22, 2:34–38, 4:52–61, 4:66–5:3, 5:11–15, 6:26–29, 8:20–35, 8:32–35, 11:9–45, Figs. 1–5, 9B). According to Patent Owner, Collins is a continuation-in-part of Morgan, but deletes the portions of Morgan Petitioner relies upon to show the “in contact” limitation. *Id.* at 37, 41. Patent Owner asserts that Morgan’s “in contact” approach results in “fixture contamination” (*id.*

at 37–38) and is “disadvantageous and inconsistent” with Collins’ solution, which requires that the heaters be isolated from the tobacco flavor material (*id.* at 39–41).

After considering Patent Owner’s teaching away argument, we find that it is not supported by Collins and Morgan under applicable legal standards. “[T]he teaching away inquiry does not focus on whether a person of ordinary skill in the art would have merely *avored* one disclosed option over another disclosed option.” *Bayer Pharma AG v. Watson Labs., Inc.*, 874 F. 3d 1316, 1327 (Fed. Cir. 2017); *see also Galderma Labs., L.P. v. Tolmar, Inc.*, 737 F.3d 731, 738 (Fed. Cir. 2013) (“A reference does not teach away, . . . if it merely expresses a general preference for an alternative invention but does not criticize, discredit, or otherwise discourage investigation into the invention claimed.”).

At most, Collins merely favors embodiments in which the heaters are isolated from the tobacco flavor material, but does not teach away from Morgan’s Figures 7 and 8 embodiment in which the heating elements are in contact with the tobacco and aerosol generating material. Morgan and Collins both teach a solution to the problem of fixture contamination. Even if Collins suggests that its solution is better than Morgan’s solution, that is not enough to establish a teaching away from Morgan. *Bayer*, 874 F.3d at 1327; *Galderma*, 737 F.3d at 738.

Morgan acknowledges the problem of residues on reusable heaters and teaches two solutions. First, Morgan teaches that “cleaning of the heaters is accomplished by the wiping action of the disposable portion against the heaters as the disposable portion is inserted” into a cavity of the permanent portion. Ex. 1005, 3:26–28, 3:48–57. Morgan teaches this “wiping” solution for both the heater arrangement of Figures 1–4 and the

heater arrangement of Figures 7 and 8. *Id.* at 6:8–22, 6:57–62. Second, Morgan teaches to select non-reactive materials for the heaters, so that the “they will not react with the tobacco flavor medium at any temperature likely to be encountered to form any undesired compounds.” *Id.* at 4:18–22.

Collins teaches several solutions to the “fixture contamination” problem. First, Collins teaches the same “wiping action” as disclosed in Morgan. Ex. 1005, 3:48–51; Ex. 1006, 6:26–32. Second, Collins teaches an aerosol barrier tube for preventing aerosol from condensing on the inside surface of the permanent portion of the electrical smoking article. Ex. 1006, 8:20–23; 9:12–23, Figs. 3A, 4, 5 (aerosol barrier tube 35); *id.* at 11:18–23, Figs. 7, 8, 9A, 9B (aerosol barrier tube 135). Third, Collins teaches a carrier (or isolation barrier) that separates the heater elements from the tobacco flavor material. *Id.* at 8:23–26, Figs. 3A, 4, 5 (carrier 36); *id.* at 11:18–23, Figs. 7, 8, 9A, 9B (isolation barrier 136). Although Collins teaches separating the tobacco flavor medium from the heaters (*see, e.g., id.* at 5:11–15), it does not criticize, discredit, or otherwise discourage Morgan’s Figures 7 and 8 embodiment in which the heaters are in contact with the tobacco and aerosol generating material. *Fulton*, 391 F.3d at 1201 (“The prior art’s mere disclosure of more than one alternative does not constitute a teaching away from any of these alternatives.”)

Patent Owner argues that Collins indicates that “fixture contamination . . . is severe when the heating elements are in contact with tobacco flavor material, as they are in Morgan’s Figures 7 and 8.” PO Resp. 37–38 (citing Ex. 1005, 3:34–37, 6:50–52; Ex. 1006, 5:10–14, 8:23–26, 8:32–35). We disagree with Patent Owner’s characterization of Collins. Collins teaches that fixture contamination is a disadvantage of Morgan’s reusable heating elements, without making any distinction among Morgan’s various heater

embodiments. Ex. 1006, 1:65–2:13. Patent Owner directs us to Morgan’s disclosure of a heater embodiment in which the heaters are in contact with the tobacco flavor medium (Ex. 1005, 3:34–37, 6:50–52) and Collins’ disclosure of a carrier that separates the heaters from the tobacco flavor material (Ex. 1006, 5:10–14, 8:23–26, 8:32–35). PO Resp. 37–38. These disclosures do not, however, support Patent Owner’s assertion that fixture contamination is “severe” in Morgan’s Figures 7 and 8 embodiment. At most, Collins teaches that its invention improves upon Morgan’s smoking device with reusable heating elements, including both embodiments in which the heaters press into the disposable portion and embodiments in which the heaters pierce and extend into the disposable portion. Ex. 1005, 3:28–37; Ex. 1006, 1:65–2:13, 4:66–5:3, 5:11–15. We find no suggestion in either Morgan or Collins that fixture contamination is worse for Morgan’s Figures 7 and 8 embodiment, as compared with Morgan’s Figures 1–6 embodiments.

Patent Owner additionally argues that, based on Collins’ teachings, a POSA would have selected the heaters of Morgan’s Figures 1–6 embodiments in which the heaters “are separated from the tobacco material by ‘wrapping paper’ and therefore less susceptible to the problem of fixture contamination” as compared with Morgan’s Figures 7 and 8 embodiment. PO Resp. 41–42 (citing Pet. 45–47). Although Patent Owner relies on Petitioner’s assertion that wrapping paper surrounds Morgan’s flavor segment 27 (*id.*; Pet. 45–47; Ex. 1003 ¶¶ 158–162; Ex. 1005, 5:26–28), Patent Owner does not point to any evidence that the wrapping paper makes the smoking article “less susceptible to the problem of fixture contamination.” PO Resp. 42.

Patent Owner relies on the following statement of law:

Whether a rejection is based on combining disclosures from multiple references, ***combining multiple embodiments from a single reference***, or selecting from large lists of elements in a single reference, there must be a motivation to make the combination and a reasonable expectation that such a combination would be successful, otherwise a skilled artisan would not arrive at the claimed combination.

In re Stepan Co., 868 F.3d 1342, 1345–46 n.1 (Fed. Cir. 2017) (vacating and remanding Board’s decision affirming Examiner’s obviousness rejection) (emphasis added). Although Patent Owner is correct that proof of motivation is required when combining multiple embodiments from a single reference (PO Resp. 31, 42 (citing *Stepan*, 868 F.3d at 1345–46 n.1)), that is not what Petitioner is doing here. As discussed above, Morgan teaches alternative heating element arrangements for a smoking article. Ex. 1005, 3:28–37, 5:6–25, 6:23–62, Figs. 2–8. No proof of motivation is required for combining any of Morgan’s heating element arrangements with the rest of the smoking article because Morgan expressly teaches those combinations. *Id.*; see *Gen. Elec.*, 983 F.3d at 1352.

Patent Owner also relies on *In re NuVasive, Inc.*, 842 F.3d 1376, 1383 (Fed. Cir. 2016), to argue “Petitioner must show why the POSA *would be motivated* to combine the prior art as proposed.” PO Resp. 44. In contrast to this case, however, the “key issue” in *NuVasive* was “whether it would have been obvious to a [POSA] to combine the cited references.” *NuVasive*, 842 F.3d at 1383. Here, there is no need to combine references because it is undisputed that Morgan discloses all limitations of claim 16.¹⁴

¹⁴ Patent Owner also relies on the Board’s decision denying institution in *Abiomed, Inc. v. Maquet Cardiovascular, LLC*, Paper 9, IPR2017-01204 (PTAB Oct. 23, 2017). *Abiomed* is not binding precedent, and its facts are

g) Conclusion for claim 16

After considering Petitioner's and Patent Owner's arguments, as well as their supporting evidence, we determine that Petitioner has shown by a preponderance of the evidence that claim 16 is unpatentable as obvious based on Morgan alone.

3. Claim 17

Claim 17 depends from claim 16 and recites: "wherein the electrical resistance heater is positioned between the electrical power source and the cartridge." Ex. 1001, 34:32–34.

Petitioner contends that Morgan discloses the additional limitation of claim 17. Pet. 56–58. More particularly, Petitioner contends that Morgan's "Figure 7 and 8 heaters are 'between' Morgan's power source and the cartridge into which they have been inserted" and include "heater portions that are not inserted into portion 21, i.e., the spacers 80." Pet. 58 (citing Ex. 1005, 6:55–63). Petitioner asserts that "Patent Owner is apparently taking a similar position in district court, as Petitioner's accused heater is inserted into the tobacco stick." *Id.* (citing Exs. 1025, 1032).

We recognize that the Deevi Declaration contradicts Petitioner's contention that Morgan alone discloses the limitation added by claim 17. Ex. 1003 ¶ 181 ("Morgan's heaters (i.e., the embodiment in Figures 7 and 8 used above) are not positioned between the power source and the cartridge. They are instead inserted into (and *inside*) the tobacco mixture."). Dr. Deevi's testimony does not, however, take into account the position taken by Patent Owner in district court, where a heater that is inserted into a

distinguishable from this case for the reasons Petitioner argues. Pet. Reply 10–11.

tobacco stick can be considered “between” the power source and the cartridge. Pet. 58 (citing Exs. 1025, 1032).

Patent Owner does not dispute that Morgan discloses the limitation of claim 17. Patent Owner submits no argument for dependent claim 17 separate from its arguments for independent claim 16. *See* PO Resp. 27–45.

Under these circumstances, we find that Petitioner’s contention for claim 17 is persuasive and supported by the evidence cited in the Petition, as summarized above. Accordingly, we determine that Petitioner has shown by a preponderance of the evidence that claim 17 is unpatentable as obvious based on Morgan alone.

E. Asserted Obviousness based on Counts-962 and Brooks

Because we determine that Petitioner has shown that all challenged claims are unpatentable based on Morgan alone, we do not reach Petitioner’s obviousness challenge based on Counts-962 and Brooks. *See SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1359 (2018) (holding a petitioner “is entitled to a final written decision addressing all of the claims it has challenged”); *Boston Sci. Scimed, Inc. v. Cook Grp. Inc.*, 809 F. App’x 984, 990 (Fed. Cir. 2020) (nonprecedential) (“We agree that the Board need not address [alternative grounds] that are not necessary to the resolution of the proceeding.”).

III. CONCLUSION

In summary:¹⁵

Claims	35 U.S.C. §	Reference(s)	Claims Shown Unpatentable	Claims Not Shown Unpatentable
16	103(a)	Morgan, Collins, Adams, Brooks ¹⁶	16	
17	103(a)	Morgan, Collins, Adams, Brooks, Counts- 962 ¹⁷	17	
16, 17 ¹⁸	103(a)	Counts-962, Brooks		
Overall Outcome			16, 17	

¹⁵ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*, 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. § 42.8(a)(3), (b)(2).

¹⁶ As discussed above, we base our decision for claim 16 on Morgan alone, a challenge that is raised in the Petition. Pet. 7, 23.

¹⁷ As discussed above, we base our decision for claim 17 on Morgan alone, a challenge that is raised in the Petition. Pet. 7, 56.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that Petitioner has shown by a preponderance of the evidence that claims 16 and 17 of the '268 Patent are unpatentable; and

FURTHER ORDERED that because this Decision is final, a party to the proceeding seeking judicial review of the Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

¹⁸ We do not reach Petitioner's challenge based on Counts-962 and Brooks because we determine that Petitioner has shown that all challenged claims are unpatentable based on Morgan alone.

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