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Paper No. 11
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

R.J. REYNOLDS VAPOR COMPANY,
Petitioner,

v.

FONTEM HOLDINGS 1 B.V.,
Patent Owner.

Case IPR2016-01270
Patent 8,893,726 B2

Before JOSIAH C. COCKS, RAMA G. ELLURU, and JO-ANNE M. KOKOSKI, *Administrative Patent Judges*.

ELLURU, *Administrative Patent Judge*.

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

I. INTRODUCTION

R.J. Reynolds Vapor Company ("Petitioner") filed a Petition requesting an *inter partes* review of claims 15 and 16 of U.S. Patent No. 8,893,726 B2 (Ex. 1001, "the '726 patent"). Paper 2, 1 ("Pet."). Fontem Holdings 1 B.V. ("Patent Owner") filed a Preliminary Response to the Petition. Paper 9 ("Prelim. Resp.").

We have jurisdiction under 35 U.S.C. § 314, which provides that an *inter partes* review may not be instituted "unless . . . there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition." 35 U.S.C. § 314(a). Upon considering the Petition and Preliminary Response, we determine that Petitioner has not established a reasonable likelihood that it would prevail in showing the unpatentability of claims 15 and 16. Accordingly, we decline to institute an *inter partes* review of those claims.

A. Related Proceedings

Petitioner identifies the following related litigation involving the '726 patent in which Petitioner is a Defendant: *Fontem Ventures B.V. et al. v. R.J. Reynolds Vapor Company*, No. 2:16-cv-02286 (C.D. Cal., filed April 4, 2016). Pet. 2. Petitioner further asserts that the '726 patent is the subject of other district court actions. *Id.* at 3.

The '726 patent was the subject of IPR2015-01302 (institution denied on December 9, 2015). IPR2015-01302, Paper 15, 25.

B. The '726 patent

The '726 patent relates to an electronic atomization cigarette that functions as a cigarette substitute. Ex. 1001, 1:59–60. The electronic cigarette comprises, among other components, an atomizer and a "liquid-supply" in contact with the atomizer. *Id.* at 1:59–2:3. Figures 1 and 6 of the '726 patent are reproduced below.

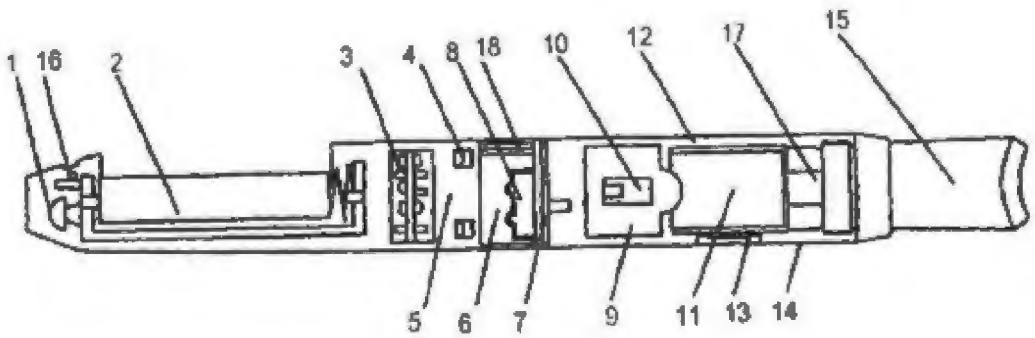

Fig. 1

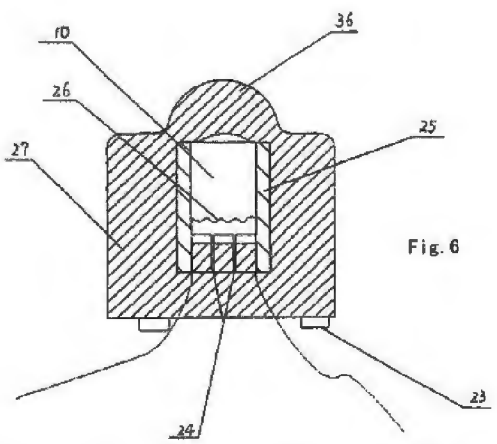

Fig. 6

Figure 1 depicts a schematic diagram of an embodiment of the electronic cigarette. *Id.* at 2:11. Figure 6 depicts a structural diagram of the atomizer within the electronic cigarette. *Id.* at 2:51–3:4. In Figure 1, the electronic cigarette comprises LED 1, cell 2, electronic circuit board 3, air inlet 4, normal pressure cavity 5, sensor 6, vapor-liquid separator 7, atomizer 9, liquid-supplying bottle 11, and mouthpiece 15, sequentially provided within shell 14. *Id.* at 2:36–40. Atomizer 9 includes porous body 27. *Id.* at 2:66-

3:2. Solution storage porous body 28 is provided in liquid-supplying bottle 11. *Id.* at 3:11–12, 3:64–67. Furthermore, "the solution storage porous body 28 in the liquid-supplying bottle 11 is in contact with the bulge 36 on the atomizer 9, thereby achieving the capillary infiltration liquid-supplying." *Id.* at 3:64–67.

C. Illustrative Claim

Of the challenged claims, claim 15, reproduced below, is independent, and claim 16 depends from claim 15.

> 15. An electronic cigarette, comprising;
>
> a housing having an inlet and an outlet;
>
> an electronic circuit board and
>
> an atomizer having a heating element, within the housing;
>
> a battery electrically connected to the electronic circuit board;
>
> a stream passage within the housing leading from the inlet to the atomizer;
>
> a liquid storage body including fiber material in a cylindrical section of the housing,
>
> *with the liquid storage body in physical contact with the atomizer*; and
>
> an aerosol passage from the atomizer to the outlet.

Id. at 6:17–28 (indentation and highlighting of limitation at issue added).

D. The Asserted Grounds of Unpatentability

Petitioner challenges the patentability of claims 15 and 16 of the '726 patent based on the following grounds (Pet. 6, 17–18):

Reference(s)	Basis	Claims
Brooks[1]	§ 102(b)	15 and 16
Brooks, Cook[2], and/or Takeuchi[3]	§ 103(a)	15 and 16

II. ANALYSIS

A. Person of Ordinary Skill in the Art

The parties dispute the proper definition of a person of ordinary skill in the art. Petitioner contends that a person of ordinary skill in the art "would have had at least the equivalent of a Bachelor's degree in electrical engineering, mechanical engineering, or biomedical engineering or related fields, along with at least 5 years of experience designing electromechanical devices, including those involving circuits, fluid mechanics and heat transfer." Pet. 13. Patent Owner includes an industrial design degree or equivalent work experience for the education level of one of ordinary skill in the art, but disagrees with Petitioner's degree of practical experience. Prelim. Resp. 6. According to Patent Owner, a person of ordinary skill in the art would have had experience on the order of 5–10 years in the area of electromechanical devices. *Id.*

For purposes of this Decision, we do not discern an appreciable difference between Petitioner's and Patent Owner's proposed levels of

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[1] Brooks, US 4,947,874, issued Aug. 14, 1990 (Ex. 1006).

[2] Cook, US 5,944,025, issued Aug. 31, 1999 (Ex. 1007).

[3] Takeuchi, US 6,155,268, issued Dec. 5, 2000 (Ex. 1008).

ordinary skill in the art that would impact our ultimate conclusions. We also consider the cited prior art as representative of the level of ordinary skill in the art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (finding the absence of specific findings on "level of skill in the art does not give rise to reversible error 'where the prior art itself reflects an appropriate level and a need for testimony is not shown'" (quoting *Litton Indus. Prods., Inc. v. Solid State Sys. Corp.*, 755 F.2d 158, 163 (Fed. Cir. 1985))).

B. Claim Construction

In an *inter partes* review, the Board interprets claim terms in an unexpired patent according to the broadest reasonable construction in light of the specification of the patent in which they appear. *See Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016); 37 C.F.R. § 42.100(b). Under that standard, and absent any special definitions, we give claim terms their ordinary and customary meaning, as would be understood by one of ordinary skill in the art at the time of the invention. *See In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). Any special definitions for claim terms must be set forth with reasonable clarity, deliberateness, and precision. *See In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). For purposes of this decision, we construe the term "physical contact" recited in independent claim 15.

"physical contact"

Independent claim 15 requires a "liquid storage body in physical contact with the atomizer." Ex. 1001, 6:26–27. Petitioner does not propose a construction for this term, but notes that "physical contact" was construed to mean "direct contact" in a previous *inter partes* review (*see* IPR2015-01302 (Ex. 1005, 10)) and asserts that it "applies this construction

for purposes of this Petition." Pet. 17. Patent Owner does not propose a construction for "physical contact." *See* Prelim. Resp. 6–9.

We determine that the Board's previous construction of "physical contact" as "direct contact" is informative. The Specification does not explicitly state "physical contact," but uses the term "contact" when it describes that "[t]he liquid-supply is in contact with the atomizer," "[t]he atomizer 9 is in contact with the liquid-supplying bottle 11 via the bulge 36," and "[t]he solution storage porous body 28 in the liquid-supplying bottle 11 is in contact with the bulge 36 on the atomizer, thereby achieving the capillary infiltration liquid-supplying." Ex. 1001, 2:2–3, 2:48–49, 3:64–67. Thus, we agree that the Specification supports a construction of "physical contact" as "direct contact."

Additionally, based on the current record, we determine the requirement that the claimed "liquid storage body" is in "direct contact" with the claimed "atomizer" as recited in claim 15 indicates that the two elements are separate. That two elements are in "direct contact" with each other indicates that the elements are separate components from one another. Moreover, the '726 patent specification states that "[t]he atomizer 9 is in contact with the liquid-supplying bottle 11" (Ex. 1001, 2:48–40) and shows that liquid-supplying bottle 11 and atomizer 9 are separate (*id.* at Fig. 1, 2:36–39). Indeed, the parties' arguments demonstrate that each has applied a construction that requires the "liquid storage body" to be separate from the "atomizer." For example, Petitioner contends that "Brooks discloses a heating element 18 that comprises a porous substrate (i.e., liquid storage body) that is *separate* from but in intimate (i.e., physical) contact with resistance heating components (i.e., the atomizer)." Pet. 39 (emphasis added) (citing Ex. 1009 ¶ 71). Likewise, Patent Owner, referring to Figure

1, argues that "[t]he '726 patent discloses the atomizer and liquid storage body as *distinct* structures." Prelim. Resp. 21 (emphasis added) (citing Ex. 2001 ¶37). Accordingly, for purposes of this decision, we determine that "physical contact" means "separate components in direct contact."

Remaining Claim Terms

The parties propose constructions for other claim terms in the '726 patent. Based on the current record, however, we determine that the remaining claim terms need not be construed explicitly for purposes of this Decision. *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (only terms in controversy need to be construed and only to the extent necessary to resolve the controversy).

C. Anticipation by Brooks

Petitioner asserts that claims 15 and 16 are anticipated by Brooks under 35 U.S.C. § 102(a). Pet. 26–46. Petitioner relies on the testimony of its declarant, Robert Sturges, Ph.D. (Ex. 1009). Patent Owner opposes Petitioner's assertions. Prelim. Resp. 16–33. Patent Owner relies on the testimony of its declarant, Richard Meyst (Ex. 2001). Based on our review of the Petition and the Preliminary Response, we determine that Petitioner has not established a reasonable likelihood that it would prevail in showing the claims are unpatentable as anticipated by Brooks.

1. Brooks (Ex. 1006)

Brooks, titled "Smoking Articles Utilizing Electrical Energy," discloses a device having two basic parts: a reusable controller and a disposable cartridge or "cigarette." *See, e.g.*, Ex. 1006, 7:15–16.

Figure 2 of Brooks illustrates an embodiment of the invention and is reproduced below:

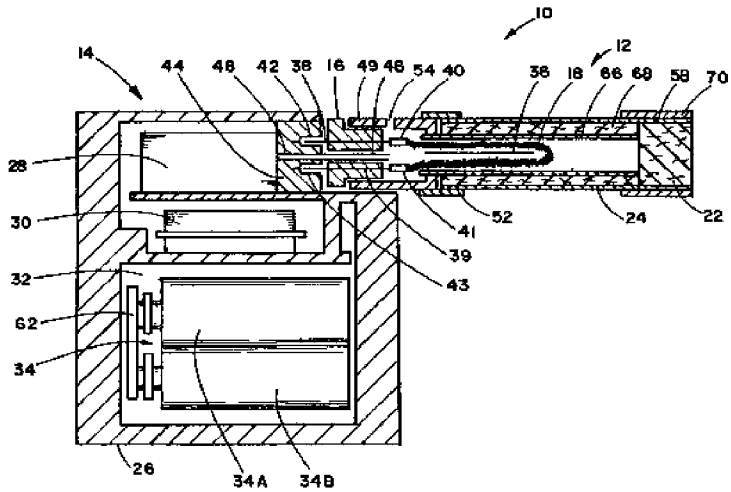

Figure 2 is a sectional view of an embodiment of the smoking device described in Brooks having reusable controller 14 and disposable cigarette 12. Ex. 1006, 6:62–63, 7:15–16.

Brooks explains that in one aspect of the invention, the disposable cigarette portion utilizes an air permeable high surface area electrical resistance heating element (18) that normally carries aerosol forming and/or tobacco flavor substances prior to use. *Id.* at 7:18. This resistance heating element "typically is a porous material" and "[p]referably, the heating element is a fibrous carbon material." Brooks further explains that,

> [p]referably, such porous heating elements are impregnated with liquid aerosol forming substances, such as glycerin, and with tobacco extracts. Such heating elements are particularly advantageous in that they are capable of holding and efficiently releasing relatively large quantities of liquid aerosol forming substances and tobacco flavor materials.

Id. at 4:22–25. Preferred heating elements include "carbon filament yarns" and "carbon felts." *Id.* at 7:48–65. Brooks also states "[o]ther suitable heating elements include . . . porous substrates in intimate contact with resistance heating components." *Id.* at 7:65–8:3. To use the invention, Brooks states that,

> the user simply inserts the cigarette or disposable portion into the controller, to electrically connect the heating element to a circuit including the current actuation and current regulating means and to the battery. When the user draws on the mouth end of the article, the preferred current actuation and current regulating means permit unrestricted or uninterrupted flow current through the resistance heating element to generate heat rapidly. This heating volatilizes the aerosol forming and/or tobacco flavor substances, which in turn form an aerosol and pass through the article and into the mouth of the user.

Id. at 5:38–50.

2. Analysis

Claim 15, and thus also claim 16, requires "the liquid storage body in physical contact with the atomizer." For this limitation, Petitioner refers to Brooks' teachings with respect to heating element 18. Pet. 37–42. Patent Owner, however, disputes that Brooks discloses the claimed "liquid storage body." Prelim. Resp. 21–33.

Relying on Brooks' statement that "[o]ther suitable heating elements include . . . porous substrates in intimate contact with resistance heating components," Petitioner equates Brooks' "porous substrates" with the recited "liquid storage body" and the "resistance heating components" of heating element 18 with the recited "atomizer." Pet. 38 (citing Ex. 1006, 7:65–8:3). According to Petitioner, a skilled artisan "would have understood that, in this arrangement, the porous substrate functions to store the aerosol forming substance and is in physical contact with the resistance heating components, which comprise the 'atomizer.'" *Id.* (citing Ex. 1009 ¶¶ 44–45, 71). Brooks explains that the porous substrates can store aerosol forming substances including "a polyhydric alcohol, such as glycerin, propylene glycol or a mixture therefor; water; a tobacco material such as tobacco

aroma oil, a tobacco essence, a spray dried tobacco extract, a freeze dried tobacco extract, tobacco dust, or the like," or combinations thereof. Ex. 1006, 8:4–22.

Patent Owner responds that Brooks does not disclose "the claimed liquid storage body, let alone one in contact with an atomizer." Prelim. Resp. 23 (citing Ex. 2001 ¶ 39). According to Patent Owner, the specific objective of Brook's heating element 18, among others, is to "hold[] and efficiently releas[e] relatively large quantities of liquid aerosol forming substances." *Id.* (citing Ex. 1006, 4:25–31, 6:32–36). Patent Owner further asserts "the heating element was designed to have two functions: hold enough liquid for 6-10 puffs of aerosol and vaporize that liquid." *Id.* Patent Owner explains that "[b]ecause Brooks' heating element 18 itself holds liquid, that *single structure* allows for efficient heat transfer by conduction without requiring additional components to transport liquid from a separate storage body." *Id.* at 26 (emphasis added) (citing Ex. 2001 ¶ 42).

Petitioner has not sufficiently persuaded us that Brooks discloses the claimed "liquid storage body" "in physical contact," i.e., separate, "with the atomizer," as recited in claim 15. We agree with Patent Owner (Prelim. Resp. 24–25) that Brooks repeatedly describes heating element 18 as both holding the liquid and atomizing it. For example, Brooks explains that the smoking article includes a disposable cigarette "which utilizes an air permeable high surface area electrical resistance heating element that normally carries aerosol forming and/or tobacco flavor substances prior to use." Ex. 1006, 4:7–13. "Such heating elements are particularly advantageous in that they are capable of holding and efficiently releasing relatively large quantities of liquid aerosol forming substances and tobacco flavor materials." *Id.* at 4:25–29; *see id.* at 7:15–35, 7:26–30. Brooks also

states heating element 18 preferably has "an adsorbant, porous, wettable character, in order to carry a suitable amount of aerosol forming substance for effective aerosol formation." *Id.* at 7:26–30. In addition, Brooks discloses that "the heating element 18 is impregnated with or otherwise carries the aerosol forming substance." *Id.* at 8:4–8. Brooks further explains that heating element 18 also atomizes the liquid it holds. Specifically, Brooks states that heating element 18 "heats and volatizes the aerosol forming substance." *Id.* at 10:45–48. Brooks discloses that "[p]referred resistance heating elements include carbon filament yarns" and "carbon felts" that have particular surface areas and resistivities. *Id.* at 7:48–62. "Other suitable heating elements include porous metal wires or films; carbon yarns, cloths, fibers, discs or strips; graphite cylinders, fabrics or paints; microporous high temperature polymers having moderate resistivities." *Id.* at 7:65–8:1. This disclosure indicates that the same element (e.g., "carbon filament yarns" or "carbon felts") that holds the aerosol forming substances also atomizes it.

Petitioner summarily asserts "Brooks discloses a heating element 18 that comprises a porous substrate (i.e., liquid storage body) that is *separate* from but in intimate (i.e., physical) contact with resistance heating components (i.e., the atomizer)." Pet. 39 (citing Ex. 1009 ¶ 71) (emphasis added). Petitioner's expert does not elucidate any further as to why a skilled artisan would understand that the "porous substrate" is *separate* from the "resistance heating components" of heating element 18. Ex. 1009 ¶ 71. Rather, the expert also summarily asserts that the "porous substrate [] is separate, but in intimate contact with, resistance heating components." *Id.* (citing Ex. 1006, 7:65–8:3). In light of the entirety of Brooks's disclosure describing the same element, heating element 18, as both holding aerosol

forming substances and atomizing them, Brooks's lone statement that *"[o]ther suitable heating elements* include . . . porous substrates in intimate contact with resistance heating components" (Ex. 1006, 7:65–8:3 (emphasis added)) does not persuade us that "in intimate contact" discloses that the porous substrate is separate from the resistance heating components of the heating element. *See* Pet. 38. Thus, Petitioner has not sufficiently persuaded us that Brooks discloses "the liquid storage body in physical contact with the atomizer," as recited in claim 15.

Accordingly, Petitioner has not established a reasonable likelihood that it would prevail with respect to its assertions that claims 15 and 16 are anticipated by Brooks.

D. Obviousness over Brooks, Cook, and/or Takeuchi

Petitioner asserts that claims 15 and 16 are unpatentable over the combination over Brooks, Cook, and/or Takeuchi. Pet. 46–56. For the limitation "the liquid storage body in physical contact with the atomizer," of claim 15, and thus, dependent claim 16, Petitioner relies on the same assertions it made with respect to anticipation. Pet. 49. Patent Owner responds that Brooks does not teach this limitation for the same reasons it disputes anticipation by Brooks. Prelim. Resp. 36. For the same reasons discussed above with respect to anticipation, we are not persuaded that Brooks teaches the limitation at issue.

Accordingly, Petitioner has not established a reasonable likelihood that it would prevail with respect to its assertions that claims 15 and 16 are unpatentable over the combination of Brooks, Cook, and/or Takeuchi.

III. CONCLUSION

We conclude that Petitioner has not established a reasonable likelihood of prevailing on its assertions that claims 15 and 16 are

unpatentable, as either anticipated by Brooks or as unpatentable over the combination of Brooks, Cook, and/or Takeuchi.

IV. ORDER

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

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