

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 IPR2016-01527
Patent 8,490,628 B2

Before BRIAN J. McNAMARA, JEREMY M. PLENZLER, and
JO-ANNE M. KOKOSKI, *Administrative Patent Judges*.

PLENZLER, *Administrative Patent Judge*.

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

I. INTRODUCTION

A. *Background*

R.J. Reynolds Vapor Company (“Petitioner”) filed a Petition to institute an *inter partes* review of claims 1, 2, 5, and 8 (“the challenged claims”) of U.S. Patent No. 8,490,628 B2 (Ex. 1001, “the ’628 patent”). Paper 1 (“Pet.”). Fontem Holdings 1 B.V. (“Patent Owner”) filed a Preliminary Response. Paper 9 (“Prelim. Resp.”). We review the Petition according to 35 U.S.C. § 314(a), 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.” For the reasons given below, we do not institute an *inter partes* review in this proceeding with respect to any of the challenged claims.

B. *Related Matters*

Petitioner and Patent Owner indicate that the ’628 patent is the subject of a number of federal district court cases. Pet. 2–4; Paper 4, 1–6. The parties additionally indicate that the ’628 patent has been the subject of prior *inter partes* review proceedings (IPR2014-01300, IPR2016-01283, and IPR2016-01285). Pet. 4; Paper 4, 7–8.

C. *Asserted Grounds of Unpatentability and Evidence of Record*

Petitioner contends that the challenged claims are unpatentable under 35 U.S.C. § 103 based on the following grounds (Pet. 6–8, 24–85).

References	Claims Challenged
Takeuchi ¹ , Whittemore ² , and Gehrer ³	1, 2, 5, and 8
Voges ⁴ and Gehrer	1, 2, 5, and 8

Petitioner provides testimony from Robert Sturges, Ph.D. Ex. 1010 (“the Sturges Declaration”). Patent Owner provides testimony from Richard Meyst. Ex. 2001 (“the Meyst Declaration”).

D. The '628 Patent

The '628 patent is directed to an electronic atomization cigarette that functions as a cigarette substitute. Ex. 1001, 1:56–57. Figures 1 and 6 of the '628 patent are exemplary, and are reproduced below.

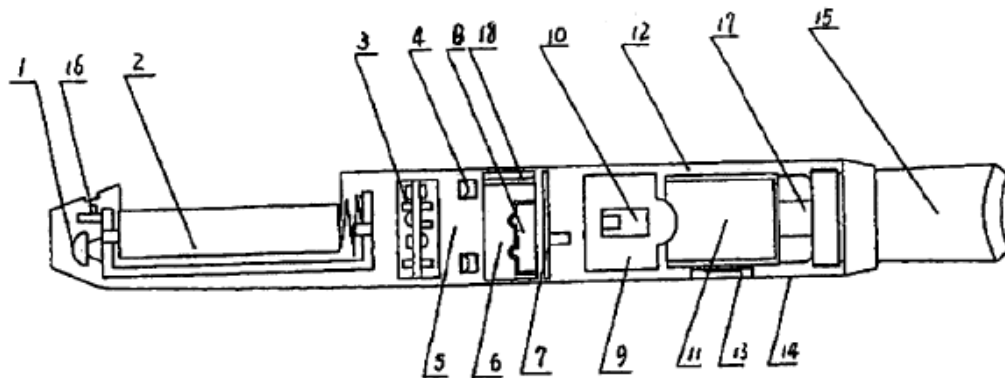


Fig. 1

Figure 1 depicts a schematic diagram of an embodiment of the electronic cigarette.

¹ U.S. Pat. No. 6,155,268, iss. Dec. 5, 2000 (Ex. 1003, “Takeuchi”).

² U.S. Pat. No. 2,057,353, iss. Sept. 27, 1935 (Ex. 1004, “Whittemore”).

³ U.S. Pat. No. 5,703,633, iss. Dec. 30, 1997 (Ex. 1006, “Gehrer”).

⁴ U.S. Pat. No. 5,894,841, iss. Apr. 20, 1999 (Ex. 1005, “Voges”).

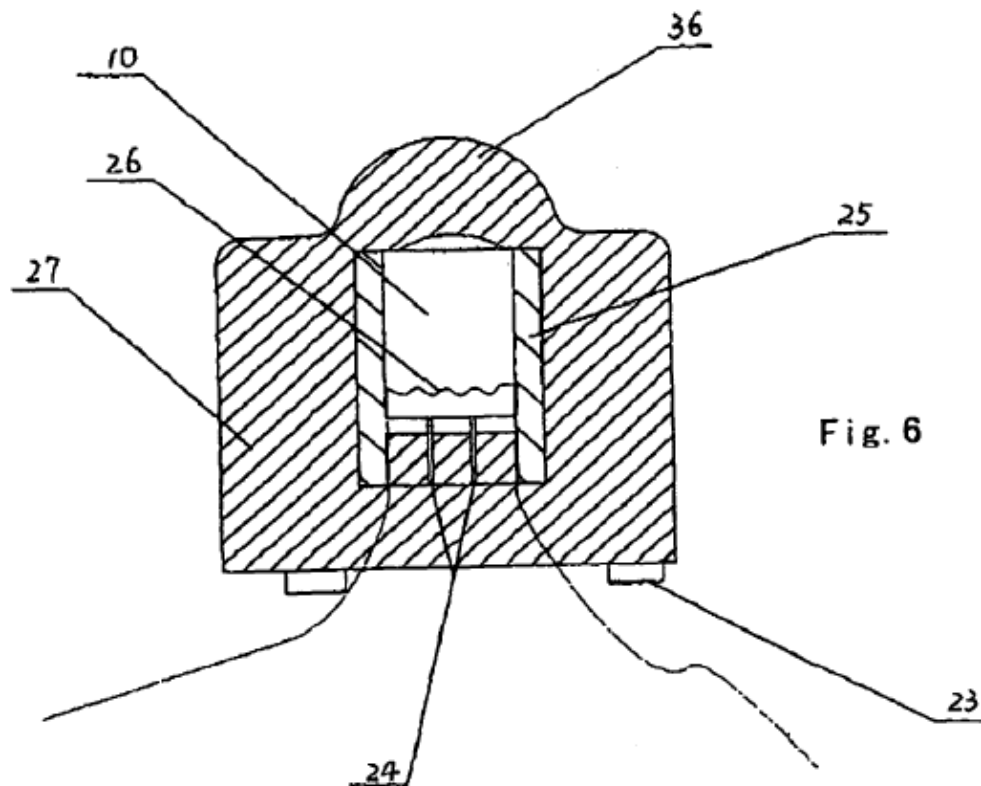


Figure 6 depicts a structural diagram of an atomizer within the electronic cigarette.

With reference to Figure 1, the electronic cigarette includes shell 14, as well as air inlet 4, LED 1, cell 2, electronic circuit board 3, 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 2:31–37, 3:43–44. In Figure 6, the atomizer (shown as atomizer 9 in Figure 1) includes heating element 26 and atomization cavity wall 25 surrounded by porous body 27, which includes bulge 36. *Id.* at 2:43–64. As described in the '628 patent, “[t]he 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 3:60–63.

E. Illustrative Claims

As noted above, Petitioner challenges claims 1, 2, 5, and 8 of the '628 patent. Claims 1 and 8 are independent claims, with claims 2 and 5 depending from claim 1. Claims 1 and 8 are reproduced below:

1. An electronic cigarette, comprising:
a housing having a longitudinal axis, an inlet and an outlet;
a liquid supply in the housing;
an air flow channel in the housing connecting the inlet to the outlet; and
an atomizer assembly in the housing between the inlet and the outlet, including:
a porous body projecting into the liquid supply; and
a heating wire in the atomizer having a central axis oriented substantially perpendicular to the longitudinal axis of the housing.

Ex. 1001, 4:63–5:6.

8. An electronic cigarette, comprising:
a housing having an inlet and an outlet;
a liquid supply, a battery, and an electronic circuit board in the housing;
an air flow channel in the housing between the inlet and the outlet; and
an atomizer in the housing including: a porous body extending into the liquid supply; a heating wire having a central axis generally perpendicular to a longitudinal axis of the housing; and with the circuit board electrically connected to the battery and the heating wire.

Id. at 6:13–23.

II. ANALYSIS

A. Claim Construction

Only those terms that are in controversy need to be construed, and only to the extent necessary to resolve the controversy. *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999). We construe the claims using the broadest reasonable construction in light of the '628 patent Specification. *See* 37 C.F.R. § 42.100(b). Applying that standard, we generally interpret the claim terms of the '628 patent according to their ordinary and customary meaning in the context of the patent's written description. *See In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). An inventor is entitled to be his or her own lexicographer of patent claim terms by providing a definition of the term in the specification with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). In the absence of such a definition, however, limitations are not to be read from the specification into the claims. *In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993).

Petitioner and Patent Owner propose constructions for several terms. Pet. 11–12; Prelim. Resp. 5–11. We determine that no term requires express construction to reach our decision.

B. Takeuchi Challenge

Petitioner challenges claims 1, 2, 5, and 8 as unpatentable over the combination of Takeuchi, Whittemore, and Gehrler. Pet. 24–62. We have reviewed Petitioner's challenge, as well as Patent Owner's response to that challenge and the evidence of record. Based on our review of the record before us, we are not persuaded that Petitioner has established a reasonable likelihood of success of showing that claims 1, 2, 5, and 8 would have been obvious over the combined teachings of Takeuchi, Whittemore, and Gehrler.

Claim 1 requires “a housing having a longitudinal axis” and “a heating wire in the atomizer having a central axis oriented substantially perpendicular to the longitudinal axis of the housing.” Claim 8 includes similar limitations. Claims 1 and 8 each additionally require that a liquid supply is in the housing. Petitioner acknowledges that “Takeuchi[’s] . . . housing ha[s] an upper chamber 121 *and* a lower chamber 122.” Pet. 33 (emphasis added). Indeed, Petitioner’s challenge requires that both upper and lower chambers 121, 122 are part of Takeuchi’s housing. *See id.* at 40–41 (noting that Takeuchi’s liquid supply is in lower chamber 122). Without any meaningful explanation in the Petition, however, Petitioner proceeds to conclude that “[t]he PHOSITA would have understood that the longitudinal axis of Takeuchi’s housing is from the inlet 18 to the outlet 22, which is the path of airflow through the upper chamber 121 of Takeuchi’s device.” *Id.* at 33. Patent Owner responds that “Takeuchi has an upside down ‘L’ configuration, with its longest dimension running from its top to its bottom. Its longitudinal axis runs along its length.” Prelim. Resp. 35. Patent Owner provides an annotated version of Takeuchi’s Figure 3, reproduced below, illustrating what is considered the longitudinal axis of the housing.

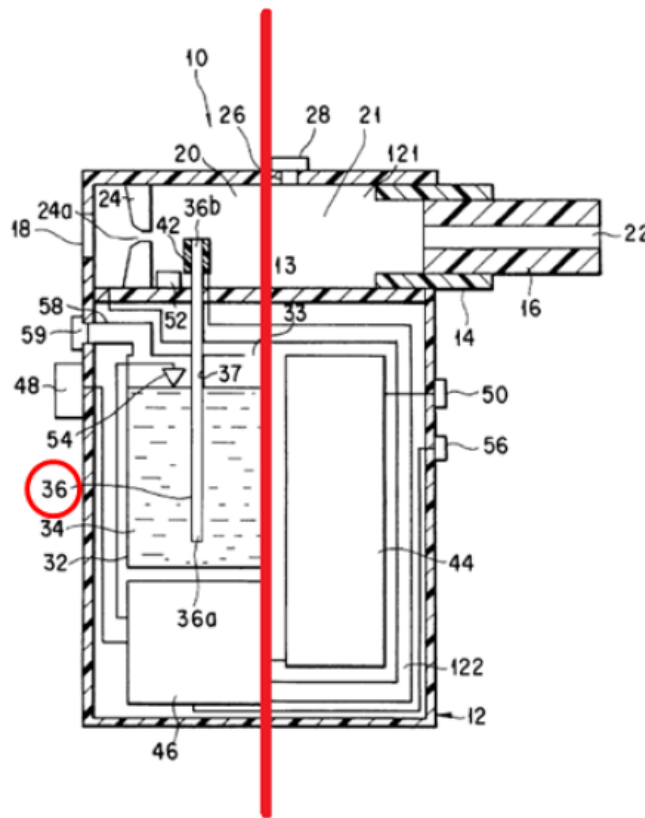


FIG. 1

The figure reproduced above is a version of Takeuchi's Figure 1 as annotated by Patent Owner, showing a section view of Takeuchi's flavor generating device, with a vertical red line indicating the "longitudinal axis" of Takeuchi's housing.

We agree with Patent Owner's characterization of Takeuchi's longitudinal axis. The parties do not dispute that a "longitudinal axis" is "the axis along the length, i.e., the longest dimension, of an object." *See* Pet. 12; Prelim. Resp. 34. Consistent with that construction, when considering upper and lower chambers 121, 122 as the housing, we are apprised of no reason why the "the axis along the length, i.e., the longest dimension, of"

that housing is anything other than that depicted above in Patent Owner's annotated version of Takeuchi's Figure 1.⁵

Petitioner further contends that the "longitudinal axis" limitation "cannot as a matter of law patentably distinguish the challenged claims over the proposed combination of Takeuchi with Whittemore and Gehrler." Pet. 35 (citing *Gardner v. TEC Sys., Inc.*, 725 F.2d 1338, 1349 (Fed. Cir. 1984)). As Patent Owner notes, however, the claim does not simply recite a "longitudinal axis" unrelated to other aspects of the electronic cigarette. Prelim. Resp. 35. Patent Owner also notes that the longitudinal axis is used as a reference to define the orientation of other components of the electronic cigarette, such as the heating element being oriented perpendicular to that longitudinal axis as recited in claims 1 and 8. *Id.*

Petitioner proceeds to argue that "it would have been obvious to modify the relative height and width of Takeuchi's device such that the horizontal axis of the housing's upper chamber is the longest dimension," noting that Takeuchi's dimensions *could* be shortened or lengthened to meet the features recited in the claims. Pet. 35–36. Petitioner ultimately concludes that "the PHOSITA would have readily appreciated that reasonable variations in the relative dimensions of the upper and lower chambers of Takeuchi's housing were a matter of routine design choice." *Id.* at 37.

⁵ Petitioner contends that "the orientation of the heater relative to the longitudinal axis is simply a matter of design choice," but offers no explanation as to how this cures the noted deficiencies. *See* Pet. 34. For example, Petitioner does not offer an alternate theory of unpatentability where Takeuchi's longitudinal axis is that depicted in Patent Owner's annotated version of Takeuchi's Figure 1.

Patent Owner responds that Petitioner's contentions are the result of impermissible hindsight. Prelim. Resp. 38–40. We agree with Patent Owner. Based on this record, we are apprised of no reason, other than impermissible hindsight reconstruction, to modify Takeuchi's housing to have its longitudinal axis in the manner recited in the claims. Accordingly, we are not persuaded that one skilled in the art would have modified Takeuchi's housing in the manner proposed by Petitioner.

Therefore, we are not persuaded that Petitioner has established a reasonable likelihood of succeeding on this challenge at trial.

C. Voges Challenge

Petitioner challenges claims 1, 2, 5, and 8 as unpatentable over the combination of Voges and Gehrler. Pet. 62–85. We have reviewed Petitioner's challenge, as well as Patent Owner's response and the evidence of record. Based on our review of the record before us, we are not persuaded that Petitioner has established a reasonable likelihood of success on this challenge to claims 1, 2, 5, and 8.

Claims 1 and 8 each require “a liquid supply” and “an atomizer” having “a porous body” extending/projecting into the liquid supply. Petitioner cites Voges as teaching the “liquid supply” and “atomizer,” but acknowledges that Voges fails to teach the “porous body.” *Id.* at 62, 69–73. Petitioner cites Gehrler as teaching the “porous body.” *Id.* at 62, 74–76. Petitioner notes that “Gehrler discloses an alternative liquid delivery system” including “a porous coupling member 20A and porous wick 38 extending into the liquid supply” where “[l]iquid is transported via capillary action by the wick 38 through coupling member 20A” and “[t]he coupling member 20A feeds the ink from the liquid supply to a printing head, a writing tip, or

other ink consuming element.” *Id.* at 63 (citing Ex. 1006, Abstract, 2:4–7, 6:19–20, 8:17–26, 8:53–67). Petitioner contends that “[t]he ink conducting element (wick 38) would be part of the atomizer assembly, because it delivers liquid for atomization and thus facilitates atomization.” *Id.* at 74. Petitioner proposes “to either substitute Gehrler’s liquid supply [including wick 38] for the liquid supply of Voges, or, in the alternative, modify the liquid supply of Voges to have the features taught by Gehrler.” *Id.* at 64. In the proposed substitution, Petitioner explains that “[t]he PHOSITA would have connected Gehrler’s coupling member 20A with the inlet port 12 of the atomizer assembly in Voges” and “[t]he ink conducting element (wick 38) would be part of the atomizer assembly, because it delivers liquid for atomization and thus facilitates atomization.” *Id.* at 74. Petitioner does not indicate what the alternate “modification” to the assembly disclosed in Voges would encompass that is different than the proposed substitution. *See id.* at 62–65, 74.

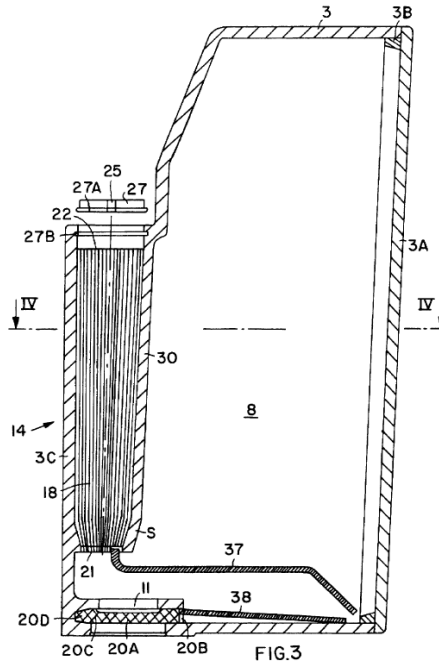
With respect to substituting Gehrler’s liquid supply for the liquid supply of Voges, Petitioner reasons that “[t]he proposed substitution is nothing more than the substitution of one known element (*i.e.*, Gehrler’s liquid storage container) for another (*i.e.*, Voges’ liquid storage container) to obtain predictable results, namely, transport of liquid via capillary action from the liquid supply to the droplet ejection device 14 of Voges.” *Id.* at 64–65. As for “modify[ing] the liquid supply of Voges to have the features taught by Gehrler,” Petitioner reasons that “the PHOSITA would have been further motivated to modify Voges to include the features of Gehrler’s liquid supply to achieve the additional – and predicted – benefits of maintaining

pressure equilibrium within the liquid supply while also preventing leakage.” *Id.* at 64.

Patent Owner responds that the proposed combination is more than a simple substitution. Prelim. Resp. 61–62. Based on the record before us, we are not persuaded that one skilled in the art would have recognized Petitioner’s proposed substitution of the liquid supply in Voges with that in Gehrer as “the mere substitution of one element for another known in the field.” *KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1740 (2007). As Patent Owner notes, for example, Gehrer’s “liquid supply” is an ink cartridge designed to be upright. Prelim. Resp. 60 (citing Ex. 1006, 8:14–37). Indeed, referencing Figure 3, Gehrer explains that

the capillary coupling member 20A and the capillary body 18 are provided with their respective ink conducting elements 38 and 37 such as a wick connected at one end to the coupling 20A or to the body 18 while the other end reaches to the lowest point in the reservoir 8 to keep the coupling member 20A and the front end or facing end 21 wetted with ink.

Ex. 1006, 8:19–26. Figure 3 from Gehrer is reproduced below.



Gehrer's Figure 3 is a section view depicting the ink cartridge in its intended upright orientation.

After the substitution proposed by Petitioner, Gehrer’s ink cartridge would not be in its intended orientation (e.g., it could be on its side or even somewhat inverted) in the device of Voges. *See* Pet. 74 (“The PHOSITA would have connected Gehrer’s coupling member 20A with the inlet port 12 of the atomizer assembly in Voges”). Patent Owner contends that after Petitioner’s proposed substitution, “those components [from Gehrer] would dry out, and liquid may leak out of vent 25.” Prelim. Resp. 61 (citing Ex. 2001 ¶ 112). Mr. Meyst supports Patent Owner’s contentions, testifying that “Gehrer[’s] . . . device may suffer from dry out if it is not kept in an upright orientation” and Petitioner’s proposed substitution “would undermine Voges’ purpose as a cigarette substitute because cigarettes function regardless of orientation.” Ex. 2001 ¶ 112 (citing Ex. 1005, 3:29–30; Ex. 1006, 5:24–25, 8:14–38). Petitioner offers no persuasive

explanation as to why it would have been a simple substitution to replace the liquid supply in Voges with that in Gehrer (i.e., why Gehrer's liquid supply would work as a substitute for the liquid supply in Voges). Accordingly, we are not persuaded that one skilled in the art would have considered substitution of the liquid supply in Voges with that in Gehrer to be a simple substitution as alleged by Petitioner.

As noted above, Petitioner's alternate proposal to "modify" the device in Voges appears to include the same substitution discussed above, rather than any particular modification to the liquid supply in Voges, with the addition of further rationale directed to alleged benefits resulting from the modification. Although Petitioner contends that "Gehrer's liquid supply system includes features that improve upon the liquid container 10 of Voges," such as "a capillary body 18 (and associated vent) for maintaining pressure equilibrium within the liquid supply while also preventing leakage, regardless of the orientation of the device," Petitioner fails to explain persuasively why Voges was in need of such an "improvement." Pet. 65. Moreover, Patent Owner responds that Voges does not suffer from the problems alleged by Petitioner and that the proposed modification would actually create some of these problems, and provides supporting testimony from Mr. Meyst. Prelim. Resp. 58–61 (citing Ex. 2001 ¶¶ 109, 111, 112). Based on the record before us, we are not persuaded that the additional rationale provided by Petitioner cures the deficiencies in the proposed substitution noted above.

Accordingly, we are not persuaded that Petitioner has established sufficiently that one skilled in the art would have modified Voges based on

the teachings of Gehrler as Petitioner proposes and, therefore, has failed to establish a reasonable likelihood of succeeding on this challenge at trial.

III. ORDER

For the reasons given, the Petition is *denied* and no *inter partes* review is instituted.

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