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Paper 9
Entered: May 26, 2015

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

R.R. STREET & CO., INC.,
Petitioner,

v.

CHEMISCHE FABRIK KREUSSLER & CO., GMBH,
Patent Owner.

Case IPR2015-00289
Patent 8,801,807 B2

Before LINDA M. GAUDETTE, BRIAN P. MURPHY, and ZHENYU YANG, *Administrative Patent Judges*.

GAUDETTE, *Administrative Patent Judge*.

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

I. INTRODUCTION

R.R. Street & Co., Inc. ("Petitioner") filed a Petition (Paper 6, Amended Petition ("Pet.")) to institute an *inter partes* review of claims 1–15 (the "challenged claims") of U.S. Patent No. 8,801,807 B2 (Ex. 1001, "the '807 patent"). 35 U.S.C. §§ 311–319. Chemische Fabrik Kreussler & Co., GMBH ("Patent Owner") filed a Preliminary Response (Paper 8, "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." Upon consideration of the Petition and Patent Owner's Preliminary Response, we determine Petitioner has not established a reasonable likelihood that it would prevail in showing the unpatentability of at least one of the challenged claims. Accordingly, the Petition is denied under 35 U.S.C. § 314(a) for the reasons that follow.

II. BACKGROUND

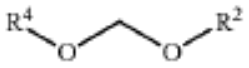
A. Related Matters

Neither Petitioner nor Patent Owner indicates it is aware of another judicial or administrative matter that would affect, or be affected by, a decision in this proceeding. Paper 3, 1; *see generally* Prelim. Resp.

B. The '807 Patent (Ex. 1001) and Illustrative Claim

The '807 patent relates to a method of chemically cleaning textile, leather, or fur goods in which the article to be cleaned is brought into contact with a cleaning agent comprising at least one solvent. Ex. 1001, 1:12–15.

Claim 1, reproduced below, is illustrative of the claimed subject matter:

> 1. A method of dry cleaning comprising bringing an article to be cleaned into contact with a cleaning agent comprising a solvent of the general formula (I):
>
> (I)
>
> 
>
> wherein R^1 and R^2 are selected independently of each other from the group consisting of an unsubstituted or substituted, straight-chain or branched C_2- through C_8-n-alkyl or C_2- through C_8-iso-alkyl residue.[1]

At the time of the invention described in the '807 patent, the most frequently used solvent for commercial textile cleaning was perchloroethylene. *Id.* at 1:66–67. A drawback of perchloroethylene is that it is considered harmful to human health, and, according to the '807 patent, by the year 2020, its use will be banned in some states. *Id.* at 2:10–11, 17–19. The solvents used in the method of the '807 patent are said to possess ecologically and toxicologically more favorable properties than perchloroethylene or other solvents commonly used in the chemical cleaning of textile, leather or fur goods, yet provide substantially equivalent or better

[1] During prosecution, claim 1 was amended to change the structure of formula (I). *See* Ex. 1002, 255. The structure, as amended, was identical to the structure shown in issued claim 1, with the exception of an R^1 in place of the R^4 shown in issued claim 1. *See id.*; *see also id.* at 64 (last listing of claims submitted by Patent Owner during prosecution). A review of the USPTO records reveals that Patent Owner filed a Request for Certificate of Correction on March 17, 2015.

cleaning properties. *Id.* at 2:35–44. An exemplary formula (I) solvent is butylal. *Id.*, claim 4; *id.* at 6:6–15.

The '807 patent states that, in addition to the formula (I) solvent, the cleaning agent used in the inventive method may include a different solvent, such as perchloroethylene. Ex. 1001, 8:29–32, 44–47. The cleaning agent may further include: cleaning boosters/activators (e.g., surfactants, corrosion inhibitors, and emulsifiers), *id.* at 6:62–7:3, and substances for trapping hydrogen proton donors, free hydrogen protons and/or free carbonyl compounds (e.g., sodium or potassium carbonate), *id.* at 7:61–65.

C. Evidence Relied Upon

Petitioner's patentability challenges are based on the following references:

Reference	**Patent/Printed Publication**	**Exhibit**
The '773 Publication	French Patent Publication 2,268,773	1004
Lambiotte	Lambiotte & Cie S.A., n-Butylal, http://web.archive.org/web/20080701143434/http://www.lambiotte.com/index2.html	1005
Lang	US 7,632,793	1007
Schulte	US 6,558,432	1008
Stewart	US 2,787,596	1009

In addition to these references, Petitioner relies on the Declaration of Gina M. Stewart, Ph.D. (Ex. 1003). Pet. 7.

D. Asserted Grounds of Unpatentability

Petitioner challenges the patentability of the '807 patent claims based on the following grounds:

Grounds	Reference(s)	Basis	Claims Challenged
1[2]	The '773 Publication	§ 102(b)[3]	1, 2, 4, 5, and 10–15
2	The '773 Publication	§ 103(a)	1, 2, 4, 5, 8, and 10–15
3	Lambiotte	§ 102(a)	1, 2, 4, 5, 10, and 12–14
4	Lambiotte and the knowledge of one of ordinary skill in the art	§ 103(a)	1, 2, 4–6, and 8–14

[2] The challenges based on the '773 Publication (above-identified Grounds 1 and 2), as listed in the Petition's "Statement of Precise Relief Requested" (Pet. 5–6), did not include claim 12. However, in its analysis of these grounds, Petitioner identified how claim 12 is anticipated by, and obvious in view of, the '773 Publication. *See id.* at 24, 27. Patent Owner has treated the challenges based on the '773 Publication as including claim 12. *See* Prelim. Resp. 18, 26. We likewise view the omission of claim 12 from above-listed Grounds 1 and 2 in the Petition's "Statement of Precise Relief Requested" as inadvertent clerical error.

[3] We do not separately list or consider Petitioner's identical challenge under 35 U.S.C. § 102(a). *See* Pet. 26. Petitioner has not identified a substantive difference between the challenges under § 102(a) and § 102(b).

Grounds	Reference(s)	Basis	Claims Challenged
5[4]	Lambiotte and Lang	§ 103(a)	1, 2, 4–6, and 8–14
6	Schulte	§ 102(b)[5]	1, 3, 5, 7, 9–11, 14, and 15
7	Schulte and the knowledge of one of ordinary skill in the art	§ 103(a)	1, 3, 5–11, 14, and 15
8	Schulte and Stewart	§ 103(a)	1, 3, 5–11, 14, and 15

III. CLAIM CONSTRUCTION

Claims of an unexpired patent are interpreted using the broadest reasonable construction in light of the specification of the patent. *See* 37 C.F.R. § 42.100(b); Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,766 (Aug. 14, 2012). Petitioner and Patent Owner disagree over whether the claim preamble ("A method of dry cleaning") limits the scope of the claims. Prelim. Resp. 4–9; Pet. 18. The parties also disagree over the

[4] Petitioner's challenge based on the combination of Lambiotte and Lang (above-identified Ground 5), as listed in the Petition's "Statement of Precise Relief Requested" (Pet. 6), did not include claims 5 and 9. However, in its claim chart, Petitioner identified where the elements recited in claims 5 and 9 are found in Lambiotte and Lang. *See id.* at 41, 49. Patent Owner has treated the challenge based on Lambiotte and Lang as including claims 5 and 9. *See* Prelim. Resp. 49, 53. We likewise view the omission of claims 5 and 9 from above-listed Ground 5 in the Petition's "Statement of Precise Relief Requested" as an inadvertent clerical error.

[5] We do not separately list Petitioner's identical challenge under 35 U.S.C. § 102(a). *See* Pet. 47. Petitioner has not identified a substantive difference between the challenges under § 102(a) and § 102(b).

scope and meaning of the claim term "solvent." Prelim. Resp. 10–13; *see, e.g.*, Pet. 7, 12, 20.

A. A Method of Dry Cleaning

Petitioner contends the claims "are not limited to dry cleaning because that element is only in the preamble." Pet. 18.

Patent Owner contends the preamble is limiting, Prelim. Resp. 4–9, because "it is clear [from the Specification that the invention] is directed to a new use (*i.e.*, as a solvent in dry cleaning) for compounds described therein," *id.* at 6. In support of this contention, Patent Owner argues the Specification does not describe any other uses for the recited "solvent of the general formula (I)," and that the preamble provides context and definition for the claim terms "cleaned" and "cleaning agent." *Id.* at 6–7.

"[A] preamble is a claim limitation if it recites essential structure or steps, or if it is necessary to give life, meaning, and vitality to the claim." *Poly-Am., L.P. v. GSE Lining Tech., Inc.*, 383 F.3d 1303, 1309 (Fed. Cir. 2004) (internal quotation marks omitted). "The effect preamble language should be given can be resolved only on review of the entirety of the patent to gain an understanding of what the inventors actually invented and intended to encompass by the claim." *Corning Glass Works v. Sumitomo Elec. U.S.A., Inc.*, 868 F.2d 1251, 1257 (Fed. Cir. 1989).

The title of the '807 patent is "Use of Diether Compounds for Chemically Cleaning Textile, Leather, or Fur Goods." The '807 patent Specification describes the invention as concerning "a method of chemically cleaning textile, leather or fur goods," "the use of a solvent having certain properties and features for the production of a cleaning agent for the chemical cleaning of textiles, leather and fur goods," and "a liquid cleaning

agent for use in a method of chemically cleaning textile, leather or fur goods." Ex. 1001, 1:12–13, 16–21. The Specification distinguishes "chemical cleaning" from wet cleaning by explaining that clothing made of materials such as leather and fur are not suitable for traditional wet cleaning because they swell in water and become matted. *Id.* at 1:25–29. "[T]herefore the care of such goods has to be carried out in commercial textile cleaning using suitable solvents." *Id.* at 1:33–34. The Specification states that modern chemical cleaning machines "operate with [] 'dry to dry' technology in which the material to be cleaned is loaded dry and is also unloaded dry again after the procedure is concluded." *Id.* at 4:58–60.

Patent Owner contends one of ordinary skill in the art would understand that the cleaning of garments, furnishings, or similar consumer goods using solvents with little or no water, as described in the '807 patent, is a "dry cleaning" process. *See* Prelim. Resp. 8. Patent Owner directs us to the U.S. Environmental Protection Agency's National Perchloroethylene Air Emission Standards for Dry Cleaning Facilities (71 Fed. Reg. 42,567, 42,724–46 (July 27, 2006) (Ex. 2002)), Prelim. Resp. 8–9, which describe "most" dry cleaning facilities as "us[ing] [perchloroethylene] in a dry cleaning machine to clean all types of garments, including clothes, gloves, leather garments, blankets, and absorbent materials." Ex. 2002, 2 (col. 3). Patent Owner also directs us to the Ireland Environmental Protection Agency Guidelines (Aug. 2008) for a definition of "dry cleaning" which is said to apply to the dry cleaning industry in Europe: "any industrial or commercial activity using VOCs [volatile organic compounds] in an installation to clean garments, furnishing and similar consumer goods with the exception of the manual removal of stains and spots in the textile and

clothing industry." Prelim. Resp. 8 (quoting Ex. 2001, 8). Petitioner's expert, Dr. Stewart, provides a similar description of dry cleaning as a process "used to clean textiles by bringing articles in contact with an organic solvent or a formulation of an organic solvent that contains no water, or in some instances, small amounts of water." Ex. 1003 ¶ 9. Dr. Stewart indicates dry cleaning is a process conducted in a machine. *See id.* ¶ 14 (explaining that regulations aimed at preventing the escape of dry cleaning solvents into the atmosphere have led to the use of closed dry-cleaning systems, i.e., dry-to dry machines).

Based on the evidence cited by Patent Owner and Dr. Stewart's testimony, we determine one of ordinary skill in the dry cleaning art[6] would understand the '807 patent's description of a method of chemically cleaning textiles, leather, and fur goods using organic solvent with little to no water as "a method of dry cleaning." In other words, based on the present record, we find the invention described in the '807 patent is limited to a method of dry cleaning using a solvent of general formula (I). Therefore, for purposes of this decision, we determine the preamble, "A method of dry cleaning," is a claim limitation, and we interpret "dry cleaning" as "using one or more solvents, with little or no water, to clean textiles, leather, or fur goods in a dry cleaning machine." *See, e.g.*, Ex. 1001, 4:58–60; Ex. 1003 ¶¶ 9, 14.[7]

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[6] Petitioner contends that "[i]n the field relevant to the '807 Patent, a person of ordinary skill in the art would have held a bachelor's degree in chemistry, chemical engineering or a closely related discipline, and one to two years of practical or industrial experience in dry cleaning." Pet. 12 (citing Ex. 1003 ¶ 16).

[7] *See also* Ex. 1002, 399 (wherein original claim 1 of the national stage '807 patent application recited "A use of a solvent of the general formula (I) . . .

B. Solvent

Petitioner does not provide an explicit interpretation of the term "solvent," but contends "[t]he claim terms in the '807 patent are presumed to take on their ordinary and customary meaning based on the broadest reasonable interpretation of the claim language." Pet. 12.

Patent Owner contends "one of ordinary skill in the art of dry cleaning understands the term 'solvent' to refer to the active cleaning ingredient in the cleaning agent and/or cleaning method," and that Petitioner's patentability challenges are based on an overly broad interpretation of the term "solvent" as encompassing stabilizers for active cleaning ingredients. Prelim. Resp. 10. Patent Owner argues, more specifically, that "the broadest reasonable interpretation of 'solvent' that is consistent with the '807 patent Specification and the understanding of the term by one of ordinary skill in the art is 'a compound having the ability to dissolve raw materials or contaminants.'" *Id.* at 13. Patent Owner contends one of ordinary skill in the art would not interpret the term "solvent" as encompassing an ingredient that acts as a stabilizer in a cleaning agent because a stabilizer is a substance used to inhibit a chemical reaction. *Id.* at 11 (citing OXFORD CHEMICAL

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as a cleaning agent in a method of machine chemical cleaning of textile, leather or fur goods in a cleaning machine, wherein the cleaning machine is a closed system" (emphasis added)); *id.* at 284 (wherein claim 1, previously amended to replace "A use of" with "A method of using" (*id.* at 325), was further amended to delete the italicized language and add the underlined language: "A method of dry cleaning comprising bringing an article to be cleaned into contact with a cleaning agent comprising a solvent of the general formula (I)").

DICTIONARY (Ex. 2004) (defining "stabilizer" as "[a] substance used to inhibit a chemical reaction, i.e. a negative catalyst")).

In general, words used in a claim are accorded their ordinary and customary meaning. *Honeywell Int'l Inc. v. Universal Avionics Sys. Corp.*, 488 F.3d 982, 992 (Fed. Cir. 2007). "Properly viewed, the 'ordinary meaning' of a claim term is its meaning to the ordinary artisan after reading the entire patent." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1321 (Fed. Cir. 2005) (quoted in *Netcraft Corp. v. ebay, Inc.*, 549 F.3d 1397 (Fed. Cir. 2008)); *see also Advanced Fiber Techs. (AFT) Trust v. J&L Fiber Servs., Inc.*, 674 F.3d 1365, 1375 (Fed. Cir. 2012) (noting that the intrinsic evidence, not extrinsic evidence, is the most reliable source for claim interpretation).

As an initial matter, we note the parties do not contend, nor do we find, that the '807 patent provides an explicit definition of the term "solvent." The '807 patent Specification describes "[p]erchloroethylene [as] a solvent with excellent solvent power in relation to the most widely varying forms of dirt," further stating that "a large part of the superior wardrobe can be cleaned in perchloroethylene in accordance with international textile care markings." Ex. 1001, 2:3–7. The Specification states that "the object of the [] invention is to provide a solvent which, in regard to its cleaning properties, in comparison with perchloroethylene or the other solvents usually employed in the chemical cleaning of textile, leather or fur goods, is substantially equivalent or even better." *Id.* at 2:35–39.

The Specification refers to "the *cleaning capacity* of compounds of the formula (I)[,] . . . perchloroethylene and the other solvents conventionally used in the chemical cleaning of textile, leather and fur

goods." *Id.* at 3:55–59. The Specification states that "the solvent in accordance with formula (I) has good solvent properties for oily and fatty soilings such as for example oil, fats and greases, waxes, fatty acids." *Id.* at 4:4–6. The Specification indicates that a solvent of general formula (I) can completely replace other conventional solvents, such as perchloroethylene, in the recited cleaning agent. *See id.* at 4:26–31. Other components identified as suitable in the cleaning agent are those that "improv[e] the cleaning effect," *id.* at 6:46–47, and prevent decomposition of the solvent, *Id.* at 8:7–10.

For purposes of this decision, based on our review of the term "solvent" as used in the Specification and claims, we agree with Patent Owner that the broadest reasonable interpretation of the claim term "solvent" is an active cleaning ingredient in the cleaning agent used in the recited method of dry cleaning. *See Ormco Corp. v. Align Tech., Inc.*, 498 F.3d 1307, 1313–14 (Fed. Cir. 2007) (limiting claims in part based on specification's identification of the "primary objective" of the invention and its distinction of the invention from the prior art based on that objective).

IV. ANALYSIS

A. Ground 1: Anticipation of Claims 1, 2, 4, 5, and 10–15 under 35 U.S.C. § 102(b) by the '773 Publication

Claim 1 recites: "A method of dry cleaning comprising bringing an article to be cleaned into contact with a cleaning agent comprising *a solvent of the general formula (I)*." (Emphasis added.) An exemplary formula (I) solvent is butylal ($CH_3CH_2CH_2CH_2OCH_2OCH_2CH_2CH_2CH_3$). Ex. 1001, claim 14, 6:6–15; Pet. 20. Claim 1, formula (I) also encompasses ethylal ($CH_3CH_2OCH_2OCH_2CH_3$) and n-propylal

($CH_3CH_2CH_2OCH_2OCH_2CH_2CH_3$). Pet. 19–20; *see also* Prelim Resp. 15, 17 (acknowledging ethylal, propylal, and butylal are "formaldehyde acetals" within the scope of claim 1). In Section III.B., above, we determined that, for purposes of this decision, the broadest reasonable interpretation of the term "solvent," as used in the claims, is an active cleaning ingredient in the recited method of dry cleaning. *See supra*, 12.

1. The '773 Publication (Ex. 1004)

The '773 Publication describes a process for stabilizing chlorinated solvents, such as methyl chloroform, trichlorethylene, and perchloroethylene, which "are used . . . to degrease metals, to *dry-clean textiles* and as ingredients in aerosols." Ex. 1004, 1:19–26, 2:11–12 (emphasis added). The process involves adding to the chlorinated solvents "between approximately 3 weight percent and approximately 5 weight percent" of an acetal, "in particular ethylal, propylal and butylal." *Id.* at 1:15–16, 33–35. According to the '773 Publication, because the boiling points of methyl chloroform, trichlorethylene, and perchloroethylene are near that of the acetals, "stabilization is as effective at the boiling temperature of the chlorinated solvent as at the ambient temperature. Thus, during the distillation process, the liquid phase and vapor phase of the chlorinated hydrocarbon keep their stability." *Id.* at 2:13–18.

2. Analysis

Petitioner contends claim 1 is anticipated by the '773 Publication's disclosure of using ethylal, propylal, and butylal to stabilize solvents used to dry-clean textiles. Pet. 20–21.

Patent Owner concedes the '773 Publication discloses that acetal-stabilized, chlorinated solvents can be used to dry-clean textiles. Prelim.

Resp. 15. However, Patent Owner argues the '773 Publication's addition of minor amounts (< 5%) of formaldehyde acetals within the scope of claim 1, formula (I), for the purpose of stabilizing the chlorinated solvents is not a description of using the acetals themselves as solvents, i.e., the active cleaning ingredient, in a dry cleaning method. *Id.* at 11.

Petitioner has not explained why, or identified evidence which establishes that, acetals within the scope of claim 1, formula (I), added in amounts of less than 5% to stabilize chlorinated dry cleaning solvents, i.e., the components described in the '773 Publication as active cleaning ingredients (*see* Ex. 1004, 2:9–12), would themselves function as active cleaning ingredients as required by claim 1. *See, e.g.*, Pet. 20 (quoting Ex. 1004, 2:9–12 (stating that chlorinated solvents stabilized with acetals "are likely to receive all the known applications for this type of solvent. They are used especially to degrease metals, to dry-clean textiles and as ingredients in aerosols.")).

Accordingly, Petitioner has failed to meet its burden to establish a reasonable likelihood it would prevail in showing at least one of claims 1, 2, 4, 5, and 10–15 is anticipated under 35 U.S.C. § 102(b) by the '773 Publication. [8, 9]

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[8] We note that claim 9, from which claims 10 and 11 depend, is not included in above-listed Grounds 1 and 2. Petitioner's analyses of these grounds do not identify explicitly where the claim 9 limitations are taught or suggested. Therefore, for this additional reason, Petitioner has not met its burden to establish a reasonable likelihood it would prevail in showing claims 10 and 11 are anticipated by, or obvious in view of (*see* Section IV.B. *infra*), the '773 Publication. *See* Prelim. Resp. 19, 29–30; Pet. 19–29.

[9] In its analysis of claim 5, Petitioner states that "one of skill in the art would

B. Ground 2: Obviousness of Claims 1, 2, 4, 5, 8, and 10–15 under 35 U.S.C. § 103(a) over the '773 Publication

Petitioner contends the '773 Publication "teaches the use of ethylal, propylal, and *butylal* in a dry cleaning system[, and] . . . one of ordinary skill in the art at the time of the invention would readily understand the use of such compounds as cleaning agents." Pet. 27 (citing Ex. 1003 ¶¶ 35–37).

Patent Owner argues Petitioner has not explained how the '773 Publication disclosure differs from the invention recited in claim 1 and why a claim 1 feature not described in the '773 Publication would have been obvious. Prelim. Resp. 23. Patent Owner also argues there is no evidence supporting Dr. Stewart's testimony that one of ordinary skill in the art would have understood that ethylal, propylal, and butylal were useful as cleaning agents. *Id.*

Like Patent Owner, we are unable to discern a substantive difference between the anticipation challenge (above-listed Ground 1) and the obviousness challenge as to claim 1. As explained in Section IV.A.2., above, Petitioner has not shown that the formaldehyde acetals added in amounts of less than 5% in the '773 Publication for the purpose of stabilizing chlorinated dry cleaning solvents would themselves function as active cleaning ingredients. Moreover, even assuming one of ordinary skill

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not understand, with reasonable certainty, the scope of Claim 5, rendering it invalid under 35 U.S.C. § 112." Pet. 22. We did not consider this argument because it exceeds the scope of *inter partes* review. *See* 35 U.S.C. § 311(b)(2013) ("A petitioner in an inter partes review may request to cancel as unpatentable 1 or more claims of a patent only on a ground that could be raised under section 102 or 103 and only on the basis of prior art consisting of patents or printed publications.").

in the art would have understood that ethylal, propylal, and butylal were useful as cleaning agents (*see* Ex. 1003 ¶ 36), Petitioner has not explained how that knowledge would have led one of ordinary skill in the art to modify the '773 Publication to achieve a method of dry cleaning wherein a solvent of general formula (I), e.g., butylal, functioned as an active cleaning ingredient.

For the above reasons, Petitioner has failed to meet its burden to establish a reasonable likelihood it would prevail in showing at least one of claims 1, 2, 4, 5, 8, and 10–15 would have been obvious under 35 U.S.C. §103(a) over the '773 Publication.

C. Ground 3: Anticipation of Claims 1, 2, 4, 5, 10, and 12–14 under 35 U.S.C. § 102(a) by Lambiotte

Claim 1 recites: "A method of dry cleaning comprising bringing an article to be cleaned into contact with a cleaning agent." In Section III.A., above, we determined that for purposes of this decision, the preamble, "A method of dry cleaning," limits the scope of the claims. We also interpreted "dry cleaning" as "using solvents with little or no water to clean garments, furnishings, or similar consumer goods in a dry cleaning machine."

1. Lambiotte (Ex. 1005)

Lambiotte is an internet publication describing the properties of n-butylal. Ex. 1005, 2. The publication further describes acetals, such as n-propylal, ethylal, and n-butylal as having physical and chemical characteristics which "give extraordinary benefits for cleaning," including high solvent power, water miscibility, good degreasing properties, and compatibility with organic solvents and surfactants. *Id.* at 4.

2. Analysis

Petitioner contends claim 1 is anticipated by Lambiotte's description of acetal solvents, including ethylal, propylal, and butylal, for various cleaning applications. Pet. 29.

Patent Owner argues Lambiotte fails to describe a method of dry cleaning and, at most, indicates n-butylal might be used for cleaning tires, walls, or ovens. Prelim. Resp. 33–34.

We agree with Patent Owner that Petitioner has not explained adequately why Lambiotte's general description of acetals, such as butylal, as having various advantageous cleaning properties is sufficient to show anticipation of the more specific dry cleaning method recited in claim 1. Petitioner has not explained why one of ordinary skill in the art would have understood the enumerated cleaning properties listed in Lambiotte as describing a defined and limited class of cleaning applications such that one of ordinary skill in the art would have recognized a description of using butylal, or other acetals within the scope of general formula (I), "with little or no water to clean garments, furnishings, or similar consumer goods in a dry cleaning machine" as required by challenged claim 1.

Accordingly, Petitioner has failed to meet its burden to establish a reasonable likelihood it would prevail in showing at least one of claims 1, 2, 4, 5, 10, and 12–14 is anticipated under 35 U.S.C. § 102(a) by Lambiotte.[10, 11]

[10] For the same reasons discussed in note 8, we agree with Patent Owner, *see* Prelim. Resp. 36–37, that Petitioner has not met its burden to establish a reasonable likelihood it would prevail in showing claim 10 is anticipated by Lambiotte, because Petitioner's analysis of above-listed Ground 3 does not

D. Ground 4: Obviousness of Claims 1, 2, 4–6, and 8–14 under 35 U.S.C. § 103(a) over Lambiotte and the Knowledge of One of Ordinary Skill in the Art

Petitioner contends Lambiotte "teaches the use of ethylal, propylal, and *butylal* in a dry cleaning system[, and] . . . one of ordinary skill in the art at the time of the invention would readily understand the use of such compounds as cleaning agents." Pet. 34 (citing Ex. 1003 ¶¶ 47–48).

Patent Owner argues Petitioner has not explained how Lambiotte differs from the invention recited in claim 1 and why a claim 1 feature not described in Lambiotte would have been obvious. Prelim. Resp. 40.

We agree with Patent Owner that Petitioner has failed to cite to persuasive evidence in support of its contention that one of ordinary skill in the art would have understood the use of butylal, or another compound within the scope of claim 1 formula (I), in a dry cleaning formulation. Petitioner's statement is based on the unsupported and conclusory declaration testimony of Dr. Stewart. *See.* Ex. 1003 ¶ 47 ("With respect to Claims 1, 2 and 4, as previously explained, the reference teaches the use of ethylal, propylal, and *butylal* in a dry cleaning formulation. Moreover, one of ordinary skill in the art at the time of the invention would readily understand the use of such compounds as cleaning agents."). We note that

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identify explicitly where the claim 9 limitations are described in Lambiotte. *See* Pet. 29–33.

[11] Similar to its analysis of claim 5 in above-listed Ground 1, Petitioner states that "one of skill in the art would not understand, with reasonable certainty, the scope of Claim 5, rendering it invalid under 35 U.S.C. § 112." Pet. 32. As discussed in note 9, we did not consider this argument because it exceeds the scope of *inter partes* review.

in a prior discussion of the state of the art as of the effective filing date of the '807 patent, Dr. Stewart testified that in 2008 "Lambiotte & Cie presented ethylal and butylal as good alternatives to chlorinated solvents." *Id.* ¶ 13. However, the "journal Tenside," cited in support of this statement, *see id.*, is not of record in the present proceeding. *See* 37 C.F.R. § 42.104(b)(5) ("[T]he petition must set forth . . . [t]he exhibit number of the supporting evidence relied upon to support the challenge and the relevance of the evidence to the challenge raised, including identifying specific portions of the evidence that support the challenge. The Board may exclude or give no weight to the evidence where a party has failed to state its relevance or to identify specific portions of the evidence that support the challenge.")

In sum, Petitioner has not identified sufficient evidence to establish a reasonable likelihood it would prevail in showing at least one of claims 1, 2, 4–6, and 8–14 would have been obvious under 35 U.S.C. §103(a) over Lambiotte and the knowledge of one of ordinary skill in the art.

E. *Ground 5: Obviousness of Claims 1, 2, 4–6, and 8–14 under 35 U.S.C. § 103(a) over Lambiotte and Lang*

1. Lang (Ex. 1007)

Lang describes solvents for use in washing and cleaning compositions. Ex. 1007, 8:25–58. The solvents are acetals having a formula which differs from formula (I) of claim 1. *See* Pet. 38.

2. Analysis

Petitioner contends Lang[12] describes the use of tetraalkoxyacetals, including tetramethoxyethane, as solvents in washing and cleaning

[12] In discussing this challenge, Petitioner refers to Lang as "the WO 097214 reference," i.e., the PCT publication number. Pet. 38. We assume this

compositions. Pet. 38. Petitioner argues "[a] person of ordinary skill in the art, upon seeing the uses of the tetraalkoxyacetals and especially tetramethoxyethane in [Lang], would [have] recognize[d] that the simpler acetyls offered by Lambiotte (i.e., ethylal, n-propylal, and n-butylal) would [] likely be appropriate substitutes." *Id.*[13]

Patent Owner argues the proposed substitution of Lambiotte's formaldehyde acetals for the tetraalkoxyacetals in Lang's method would not result in the claim 1 method because Lang fails to teach the use of tetraalkoxyacetals in a method of dry cleaning. Prelim. Resp. 52. Patent Owner also argues Petitioner has failed to provide evidence to support its contention that "one of ordinary skill in the art would have expected the chemical and physical properties of acetals with a different backbone than

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reference was in error, and that Petitioner intended to refer to the issued US patent, as the PCT publication WO2006/097214 is not of record, and all citations are to US 7,632,793 B2 (Ex. 1007). *See* Prelim. Resp. 49 n.1.

[13] Petitioner's discussion of this ground, as well as above-listed Ground 8, is preceded by the following statement: "A conclusion of obviousness based on more than a single piece of prior art does not require a motivation to combine references." Pet. 37, 49. Likewise, Dr. Stewart's analysis of above-listed Grounds 5 and 8 is preceded by the statement: "I am informed that a conclusion of obviousness based on more than a single piece of prior art does not require a motivation to combine references." Ex. 1003 ¶¶ 55, 66. Petitioner does not provide any citations in support of this statement, which we find to be contrary to the relevant case law. *See, e.g.*, *InTouch Techs., Inc. v. VGO Commns, Inc.*, 751 F.3d 1372, 1348 (Fed. Cir. 2014) (noting the declarant's testimony "was plagued with numerous problems, including her failure to: (1) identify sufficient reasons or motivations to combine the asserted prior references.").

the acetals claimed in claim 1 of the '807 patent to have the same chemical and physical properties." *Id.* at 51–52.

As discussed in Section III.A., above, the claims are limited to "[a] method of dry cleaning" (claim 1), which we interpret as "a method of using solvents with little or no water to clean clean textiles, leather, or fur goods in a dry cleaning machine." Petitioner cites column 8, lines 17–19, and column 9, lines 20–23 and 31–32, of Lang for a teaching of using tetraalkoxyacetals in laundry detergents and as stain sprays and stain removers for textiles. Pet. 38–39. We agree that Lang lists numerous uses of the disclosed tetraalkoxyacetals in cleaning-related products. *See* Prelim. Resp. 52; Ex. 1007, 9:20–31. However, the list does not include using the tetraalkoxyacetals with little or no water to clean garments, furnishings, or similar consumer goods in a dry cleaning machine, and Petitioner has not explained why one of ordinary skill in the art reasonably would have expected, based on this list, that Lang's tetraalkoxyacetals could be used in this manner, i.e., in a method of dry cleaning.

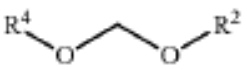
We also agree with Patent Owner that Petitioner has not explained adequately why one of ordinary skill in the art reasonably would have expected that Lambiotte's acetals could be substituted successfully for the tetraalkoxyacetals in the cleaning applications described in Lang. *See* Prelim. Resp. 50–52. Petitioner does not provide a citation to the record in support of its statement that "[a] person of ordinary skill in the art, upon seeing the uses of [Lang's] tetraalkoxyacetals . . . would recognize that the simpler acetyls offered by Lambiotte . . . would [] likely be appropriate substitutes," Pet. 38. This appears to be a quote from Dr. Stewart's declaration. *See* Ex. 1003 ¶ 55. However, Dr. Stewart has not identified

evidence in support of this statement, or otherwise explained the basis for her opinion. *See id.*

For the above reasons, Petitioner has not established a reasonable likelihood it would prevail in showing at least one of claims 1, 2, 4–6, and 8–14 would have been obvious under 35 U.S.C. § 103(a) over Lambiotte and Lang.

F. Ground 6: Anticipation of Claims 1, 3, 5, 7, 9–11, 14, and 15 under 35 U.S.C. §102 (b) by Schulte

Claim 1 requires:

> a cleaning agent comprising a solvent of the general formula (I):
>
> (I)
>
> 
>
> wherein R^1 and R^2 are selected independently of each other from the group consisting of an unsubstituted or substituted, straight-chain or branched C_2- through C_8-n-alkyl or C_2- through C_8-iso-alkyl residue.

"Butylal . . . is the compound of general formula (I) where R^4 and R^2 (or R^1 and R^2) each is an unsubstituted C_4-alkyl residue, and could be branched (as in iso-butylal, sec-butylal or tert-butylal) or unbranched (as in n-butylal)." Pet. 20.

1. Schulte (Ex. 1008)

Schulte describes "substrate cleaning systems, such as textile cleaning systems, utilizing an organic cleaning solvent and a pressurized fluid solvent." Ex. 1008, 1:12–14. According to Schulte, "there are significant

regulatory burdens placed on solvents such as perchloroethylene," *id.* at 1:36–37, "a solvent [used] to clean delicate substrates, such as textiles, in a process referred to as 'dry cleaning,'" *id.* at 1:19–32. Schulte's cleaning system "utilizes solvents that are less regulated and less combustible, and that efficiently remove different soil types typically deposited on textiles through normal use." *Id.* at 5:16–19. Schulte identifies suitable solvents as having general chemical structures A–O. *Id.* at 7:1–12:67. General chemical structure F is $C_nH_jX_kO_b$ where each X is independently F, Cl, Br, or I; $2 \leq n \leq 32$; $O \leq j, k \leq (2n+2)$; $6 \leq j + k) \leq (2n + 2)$; and $l \leq b \leq 6$. *Id.* at 9:13–34. Di-n-butyl ether, 1-methoxy nonafluorobutane is the only specific compound identified by Schulte as an example of an organic solvent described by general chemical structure F. *Id.* at 9:35–37.

2. Analysis

Petitioner notes Schulte explicitly identifies a di-n-butyl ether (i.e., di-n-butyl ether, 1-methoxy nonafluorobutane) as an example of a suitable organic solvent having general chemical structure F. Pet. 44. Petitioner contends Schulte's general chemical structure F describes (monoether) di-n-butyl ether ($CH_3CH_2CH_2CH_2OCH_2CH_2CH_2CH_3$) when n=8, j=18, k=0, and b=1. *Id.* at 43. Petitioner contends Schulte also describes the diether version of monoether di-n-butyl ether, i.e., butylal ($CH_3CH_2CH_2CH_2OCH_2OCH_2CH_2CH_2H_3$), as a dry-cleaning solvent when n=9, j=20, k=0, and b=2 in general chemical structure F. *Id.* (emphasis added to show the difference in the two structures). Petitioner argues this description of butylal as a suitable cleaning solvent in a dry-cleaning system anticipates claim 1. *Id.* at 43–44.

Patent Owner argues Petitioner has not explained sufficiently "how the general chemical structure F is sufficiently limited or well delineated to anticipate" general formula (I) of claim 1, noting di-n-butyl ether is not described by general formula (I). Prelim. Resp. 56–57. We agree with Patent Owner.

General chemical structure F is one of 15 general chemical structures identified as suitable for use in Schulte's cleaning system. Each of these general chemical structures encompasses numerous compounds. Knowing the desired end result is a compound of claim 1, general formula (I), Petitioner uses impermissible hindsight to derive such compound, i.e., butylal, from Schulte's disclosure of di-n-butyl ether,1-methoxy nonafluorobutane. Pet. 43–44; Ex. 1003 ¶ 57. However, Petitioner has not explained adequately why one of ordinary skill in the art would have recognized butylal from Schulte's disclosure of di-n-butyl ether, 1-methoxy nonafluorobutane as an exemplary compound of general chemical structure F.

Accordingly, Petitioner has failed to meet its burden to establish a reasonable likelihood it would prevail in showing at least one of claims 1, 3, 5, 7, 9–11, 14, and 15 is anticipated under 35 U.S.C. § 102(b) by Schulte.[14]

[14] Petitioner's challenges based on Schulte (above-identified Grounds 6–8), as listed in the Petition's "Statement of Precise Relief Requested" (Pet. 6–7) include claim 7. However, claim 7 is not mentioned in Petitioner's analyses of these challenges. *See id.* at 43–55. Therefore, for this additional reason, Petitioner has not met its burden to establish a reasonable likelihood it would prevail in showing claim 7 is anticipated by Schulte, or in showing claim 7 would have been obvious over Schulte in view of the knowledge of one of ordinary skill in the art or in view of Stewart. *See* 37 C.F.R. § 42.104(b)(4) (stating that a petition for *inter partes* review "must specify where each

G. Ground 7: Obviousness of Claims 1, 3, 5–11, 14, and 15 under 35 U.S.C. § 103(a) over Schulte and the Knowledge of One of Ordinary Skill in the Art

Petitioner contends the invention as recited in claim 1 would have been obvious because Schulte "teaches the use of ethylal, propylal, and *butylal* in a dry cleaning system[, and] . . . one of ordinary skill in the art at the time of the invention would [have understood] the use of such compounds as cleaning solvents or agents." Pet. 47 (citing Ex. 1003 ¶¶ 62–63).

Patent Owner contends "Petitioner has failed to provide any reason for why it would have been obvious to select butylal or any other compound encompassed by general formula (I) of claim 1 of the '807 patent from the general chemical structure F in [Schulte]." Prelim. Resp. 58.

As noted by Patent Owner, Petitioner's challenge as to claim 1 is based solely on the unsupported testimony of Dr. Stewart. *Id.* Dr. Stewart's testimony is deficient in that she fails to provide some explanation as to how the prior art would have provided direction to one of ordinary skill in the art to select ethylal, propylal, or butylal from the numerous possible choices in Schulte. *See PharmaStem Therapeutics, Inc. v. ViaCell, Inc.*, 491 F.3d 1342, 1364 (Fed. Cir. 2007); *In re O'Farrell*, 853 F.2d 894, 903 (Fed. Cir. 1988).

In view of the above, Petitioner has not met its burden to establish a reasonable likelihood it would prevail in showing at least one of claims 1, 3,

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element of [a challenged] claim is found in the prior art patents or printed publications relied upon.").

5–11, 14, and 15 would have been obvious under 35 U.S.C. § 103(a) over Schulte and the knowledge of one of ordinary skill in the art.

H. Ground 8: Obviousness of Claims 1, 3, 5–11, 14, and 15 under 35 U.S.C. § 103(a) over Schulte and Stewart

Petitioner relies on Stewart for a teaching of "surfactants in cleaning, including for use as a 'dry cleaning aid.'" Pet. 18 (citing Ex. 1009, 2:48). Petitioner does not explain how Stewart provides a teaching or suggestion of any claim 1 limitations, or how Stewart cures any deficiency in Schulte with respect to claim 1. *See id.* at 49–51. Accordingly, for the same reasons discussed in Section IV.G., above, Petitioner has not met its burden to establish a reasonable likelihood it would prevail in showing at least one of claims 1, 3, 5–11, 14, and 15 would have been obvious under 35 U.S.C. § 103(a) over Schulte and Stewart.

V. CONCLUSION

For the above reasons, Petitioner has not demonstrated there is a reasonable likelihood it would prevail in showing the unpatentability of at least one of the challenged claims.

VI. ORDER

For the reasons given, it is

ORDERED that the Petition is *denied*, and no trial is instituted.

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