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Paper 10
Entered: June 16, 2017

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

INOGEN, INC.,
Petitioner,

v.

SEPARATION DESIGN GROUP IP HOLDINGS, LLC,
Patent Owner.

Case IPR2017-00453
Patent 9,199,055 B2

Before KRISTINA M. KALAN, JON B. TORNQUIST, and CHRISTOPHER M. KAISER, *Administrative Patent Judges.*

TORNQUIST, *Administrative Patent Judge*.

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

I. INTRODUCTION

Inogen, Inc. ("Petitioner") filed a Petition (Paper 2, "Pet.") requesting *inter partes* review of claims 12–21 of U.S. Patent No. 9,199,055 B2 (Ex. 1001, "the '055 patent"). Separation Design Group IP Holdings, LLC ("Patent Owner") filed a Preliminary Response to the Petition (Paper 8, "Prelim. Resp.").

We have authority to determine whether to institute an *inter partes* review. 35 U.S.C. § 314; 37 C.F.R. § 42.4(a). The standard for instituting an *inter partes* review is set forth in 35 U.S.C. § 314(a), which provides that an *inter partes* review may not be instituted "unless the Director determines . . . there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition."

After considering the Petition and the Preliminary Response, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing with respect to claims 12–21 of the '055 patent. Accordingly, we institute *inter partes* review with respect to those claims.

A. Related Proceedings

The parties indicate that the '055 patent, as well as related U.S. Patent No. 8,894,751 ("the '751 patent"), are at issue in *Separation Design Group IP Holdings, LLC v. Inogen, Inc.*, Case No. 2:15-cv-08323-JAK-JPR (C.D. Cal.). Pet. 12; Paper 5, 2. The parties further note that the '751 patent is at issue in IPR2017-00300. Pet. 12; Paper 5, 2–3.

B. The '055 Patent

The '055 patent discloses "lightweight, portable oxygen concentrators that operate using an ultra-rapid, sub one second, adsorption cycle." Ex. 1001, 2:20–22. The disclosed portable oxygen concentrators (POCs)

operate using pressure swing adsorption. *Id.* at 10:48–51. In these POCs, an adsorbent bed of molecular sieve material, typically in the form of spherical zeolite particles, is filled with pressurized air. *Id.* at 10:52–56. Nitrogen is preferentially adsorbed by the molecular sieve material, resulting in an oxygen-enriched product. *Id.* at 6:65–67, 10:52–56. When the beds are depressurized, the adsorbed nitrogen is desorbed from the molecular sieve material and expelled from the device. *Id.* at 10:57, 17:44–48, 18:2–3.

The ’055 patent explains that, because the disclosed POCs are designed to use ultra-rapid pressure cycles, the required amount of adsorbent material is significantly reduced. *Id.* at 10:61–67. For example, where the typical POCs use adsorbent beds with approximately 0.5 kilograms of adsorbent, the adsorbent beds of the invention may contain less than about 50 grams of adsorbent. *Id.* at 10:61–65.

Because the molecular sieve materials are “highly susceptible to contamination by water,” the performance of oxygen concentrators degrades over time, necessitating replacement by a “manufacturer or a reseller.” *Id.* at 12:16–24. As the life of the adsorbent is often the limiting factor in the life of the device, the ’055 patent posits that it would be “advantageous to have an adsorbent that is replaceable by the user.” *Id.* at 12:24–27.

C. Illustrative Claims

Claims 12 and 21 are illustrative of the challenged claims and are reproduced below:

> 12. A portable oxygen concentrator system, comprising:
> at least one *removable module* comprising a housing;
>
> at least one adsorbent bed contained in said housing;
>
> wherein said adsorbent bed comprises at least one molecular sieve material;

> wherein said molecular sieve material has a substantially spherical shape;
>
> wherein the ratio of the length of said adsorbent bed to the diameter of said adsorbent bed is less than about 4.8:1;
>
> and wherein said adsorbent is capable of a ratio of product flow rate to mass of said molecular sieve material of greater than 3.3 ml/min/g;
>
> a compressor;
>
> a manifold to control gas flow into and out of said removable module;
>
> and at least one removable battery pack;
>
> wherein said portable oxygen concentrator system weighs less than about 5 kg.

Ex. 1001, 25:24–26:9 (emphasis added).

> 21. A portable oxygen concentrator system of claim 12, wherein said removable module is *replaceable by a user*.

Id. at 26:32–33 (emphasis added).

D. The Asserted Grounds of Unpatentability

Petitioner contends claims 12–21 of the '055 patent are unpatentable based on the following grounds (Pet. 34–68):[1]

References	Basis	Claims Challenged
McCombs,[2] Whitley,[3] and AAPA[4]	§ 103	12–18 and 21
McCombs, Whitley, and Occhialini[5]	§ 103	12–18 and 21

[1] Petitioner also relies on a declaration from Brenton A. Taylor (Ex. 1011).
[2] US 2006/0117957 A1, published June 8, 2006 (Ex. 1002).
[3] US 2007/0137487 A1, published June 21, 2007 (Ex. 1003).
[4] Petitioner contends that certain statements within the '055 patent are Applicant Admitted Prior Art. Pet. 32–33.
[5] U.S. Patent No. 7,279,029 B2, issued Oct. 9, 2007 (Ex. 1004).

References	Basis	Claims Challenged
Jagger,[6] McCombs, and AAPA	§ 103	12–18 and 21
McCombs, Whitley, AAPA, and Bliss[7]	§ 103	19 and 20
McCombs, Whitley, Occhialini, and Bliss	§ 103	19 and 20
Jagger, McCombs, AAPA, and Bliss	§ 103	19 and 20

Petitioner contends McCombs, Whitley, Occhialini, Jagger, and Bliss are prior art to the '055 patent under 35 U.S.C. § 102(b). Pet. 20.

II. ANALYSIS

A. Claim Construction

In an *inter partes* review, "[a] claim in an unexpired patent shall be given its broadest reasonable construction in light of the specification of the patent in which it appears." 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2142 (2016) (upholding the use of the broadest reasonable interpretation standard). In determining the broadest reasonable construction, we presume that claim terms carry their ordinary and customary meaning. *See In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). A patentee may define a claim term in a manner that differs from its ordinary meaning; however, any special definitions must be set forth in the specification with reasonable clarity, deliberateness, and precision. *See In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

[6] US 2006/0174874 A1, published Aug. 10, 2006 (Ex. 1005).
[7] US 2006/0230931 A1, published Oct. 19, 2006 (Ex. 1006).

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