



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 15/105,448 | 06/16/2016 | Raj Rajagopal | 74451US004 | 9871 |
| 32692 | 7590 | 11/19/2019 | EXAMINER | |
| 3M INNOVATIVE PROPERTIES COMPANY PO BOX 33427 ST. PAUL, MN 55133-3427 | | | MUI, CHRISTINE T | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1797 | |
| | | | NOTIFICATION DATE | DELIVERY MODE |
| | | | 11/19/2019 | ELECTRONIC |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

LegalUSDocketing@mmm.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte RAJ RAJAGOPAL, KURT J. HALVERSON,
SHAWN C. DODDS, and
RAMASUBRAMANI KUDUVA RAMAN THANUMOORTHY

Appeal 2019–002918
Application 15/105,448
Technology Center 1700

Before JEFFREY B. ROBERTSON, MONTÉ T. SQUIRE, and
JANE E. INGLESE, *Administrative Patent Judges*.

INGLESE, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant requests our review under 35 U.S.C. § 134(a) of the Examiner’s decision to finally reject claims 1–22.^{1,2} We have jurisdiction over this appeal under 35 U.S.C. § 6(b).

We REVERSE.

¹ We use the word “Appellant” to refer to the “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies 3M Company and 3M Innovative Properties Company as the real parties in interest. Appeal Brief filed August 14, 2018 (“Appeal Br.”) at 2.

² Final Office Action entered March 14, 2018 (“Final Act.”) at 1.

CLAIMED SUBJECT MATTER

Claim 1, the sole pending independent claim, illustrates the subject matter on appeal, and is reproduced below with contested subject matter italicized:

1. A sample detection container adapted to contain and concentrate a sample for detection of an analyte of interest, if present, the container comprising:
 - an open end configured to receive a sample;
 - a closed end that includes a microcavity, the *microcavity including a top opening, a base, and a longitudinal axis that is normal with respect to a transverse cross-section of the microcavity, the microcavity configured to provide capillary forces to retain a sample of interest; and*
 - a wall that extends to the microcavity,*
 - wherein at least a portion of the wall located adjacent the top opening of the microcavity has a slope that is oriented at an effective angle α with respect to the longitudinal axis of the microcavity, wherein the effective angle α is greater than 45 degrees and less than 90 degrees, and*
 - wherein at least the portion of the wall located adjacent the top opening of the microcavity that is oriented at the effective angle α has a length of at least 5 times a transverse dimension of the top opening of the microcavity.*

Appeal Br. 9 (Claims Appendix) (emphasis and spacing added).

REJECTIONS

The Examiner maintains the rejection of claims 1–22 under 35 U.S.C. § 102(a)(2) as anticipated by, or alternatively under 35 U.S.C. § 103 as unpatentable over, Rajagopal (WO 2013/003309 A1, published January 3, 2013) in the Examiner’s Answer entered December 27, 2018 (“Ans.”).

FACTUAL FINDINGS AND ANALYSIS

Upon consideration of the evidence relied upon in this appeal and each of Appellant's contentions, we reverse the Examiner's rejection of claims 1–22 under 35 U.S.C. § 102(a)(2), and rejection of claims 1–22 under 35 U.S.C. § 103, for the reasons set forth in the Appeal Brief and below.

Claim 1 requires the recited sample detection container to comprise, in part, a closed end that includes a microcavity having a top opening, and a wall that extends to the microcavity, at least a portion of which is located adjacent the top opening of the microcavity.

The Examiner finds that Rajagopal discloses sample detection container 102 comprising a closed end that includes a microcavity created by housing 132 of filter 112. Final Act. 5 (citing Rajagopal 17, ll. 15–16, 23, ll. 11–14, Figs. 1 and 2). The Examiner finds that Rajagopal discloses that the microcavity has a top opening, and “filter 112 is . . . the closed end and base of the microcavity.” Final Act. 5 (citing Rajagopal 23, ll. 11–14, Fig. 1). The Examiner finds that Rajagopal discloses “slanted wall edge at second end 116,” which the Examiner determines is “a wall that extends to the microcavity” and includes at least a portion located adjacent the top opening of the microcavity. Final Act. 5 (citing Rajagopal Figs. 1, 2, and 5).

Appellant argues that the space created by Rajagopal's housing 132 and filter 112 is not a “microcavity” as this term is defined in Appellant's Specification. Appeal Br. 3–4 (citing Spec. 17, ll. 10–25). In response, the Examiner indicates in the Answer that “[t]he Examiner has taken the position to define the claimed microcavity as the recesses formed in the filter, [f]ilter 112 is considered to be the closed end and base of the

microcavity created by housing 132 of filter.” Ans. 13 (citing Rajagopal 23, ll. 11–14, and Figs. 1 and 4).

On the record before us, however, for reasons expressed by Appellant (Appeal Br. 3–7) and discussed below, the Examiner does not provide a sufficient factual basis to establish that Rajagopal discloses or would have suggested a sample detection container comprising a closed end that includes a microcavity having a top opening, and a wall that extends to the microcavity, at least a portion of which is located adjacent the top opening of the microcavity, as required by claim 1.

Rajagopal discloses a method for isolating and detecting an analyte of interest from a sample using a combination of filtration and centrifugation. Rajagopal 6, ll. 32–34. More specifically, Rajagopal discloses filtering a sample to retain an analyte present in the sample on a filter, orienting the filter to face microstructured recesses, adding a diluent to the filter, and centrifuging the filter to force the analyte into the microstructured recesses. Rajagopal 6, l. 34–7, l. 2. Rajagopal discloses analyzing the microstructured recesses to detect and/or quantify the analyte. Rajagopal 7, ll. 7–8.

Rajagopal discloses multiple-component detection system 100 for carrying out this method, which includes first container 102 and second container 104. Rajagopal 17, ll. 15–17, Figs. 1, 2, and 3. Rajagopal discloses that first container 102 comprises receptacle portion 106 and filter portion 108. Rajagopal 18, ll. 27–31, Figs. 1 and 2. Rajagopal discloses that receptacle portion 106 includes first open end 114 and second end 116 removably coupled through filter connection assembly 120 to filter portion 108. Rajagopal 20, ll. 9–12, 18–19, Fig. 1. Rajagopal discloses that filter portion 108 includes filter housing 132 containing filter 112 having first side

113. Rajagopal 18, ll. 27–31, 21, ll. 14–15, 23, ll. 9–10, and Fig. 1.

Rajagopal discloses isolating an analyte from a sample by adding the sample to open end 114 of receptacle portion 106, from which the sample passes through filter 112. Rajagopal 20, ll. 9–12. Rajagopal discloses that filter 112 separates the sample into filtrand 151, which is retained on first side 113 of filter 112, and a filtrate, which passes through filter 112.

Rajagopal 19, ll. 10–15, 23, ll. 9–12. Rajagopal discloses removing filter portion 108 from receptacle portion 106 of first container 102, adding a diluent to filter portion 108, and coupling filter portion 108 to detection portion 110 to form second container 104. Rajagopal 19, ll. 10–13, 28, ll. 19–21, and Fig. 3. Rajagopal discloses that detection portion 110 includes microstructured recesses 136, and discloses inverting and centrifuging second container 104 toward detection portion 110 to cause a sediment of filtrand 151 to move into recesses 136. Rajagopal 17, ll. 18–19, 19, ll. 13–15, 28, ll. 28–34, and Figs. 4 and 5.

As discussed above, the Examiner determines that “recesses” formed in filter 112 correspond to the microcavity recited in claim 1, while also determining that filter 112 is “the closed end and base of the microcavity created by housing 132 of filter.” Final Act. 5. These two positions taken by the Examiner are somewhat contradictory, and it is unclear which structure or combination of structures disclosed in Rajagopal the Examiner actually relies on as corresponding to the microcavity recited in claim 1. It is not apparent how recesses formed in filter 112, to the extent any such recesses exist (as discussed below), can constitute the microcavity, while at the same time, the microcavity can be formed by filter housing 132 where filter 112 constitutes the base of the microcavity.

Notably, as Appellant points out (Reply Br. 2), the Examiner does not identify any disclosure in Rajagopal indicating that filter 112 actually includes recesses. Rather, as discussed above, Rajagopal discloses that *detection portion 110* of second container 104 *includes microstructured recesses 136* into which filtrand 151 is collected from filter 112 by centrifuging second container 104.

Furthermore, even if filter housing 132 forms a microcavity having filter 112 as a base as the Examiner asserts, the Examiner's finding that Rajagopal discloses a wall having at least a portion located adjacent the top opening of such a microcavity is based on an unreasonably broad interpretation of "adjacent." As discussed above, the Examiner finds that Rajagopal discloses "slanted wall edge at second end 116" of receptacle portion 106, which the Examiner determines is a wall that extends to the microcavity and includes at least a portion located adjacent the top opening of the microcavity. Final Act. 5 (citing Rajagopal Figs. 1, 2, and 5).

As Appellant points out, however, the Specification explicitly states that the phrase "'located adjacent the top opening of the microcavity' refers to the wall 138 (or a portion thereof) *extending right up to the top opening 144 of the microcavity 136* (as shown), *or to a location that is less than 1 time* (ideally, less than 0.5X, or less than 0.25X) *a transverse dimension—i.e., a representative x,y dimension, as described above—of the microcavity 136.*" Appeal Br. 4 (citing Spec. 26, ll. 12–16, (which refers to Appellant's Figures 1–3)) (emphasis added). Appellant argues that Figures 1 and 2 of Rajagopal show that second end 116 "is far away from filter portion 108 that includes filter 112," and Figure 5 shows that second end 116 is "**more than**

1 times a transverse dimension of a microcavity from filter portion 108 that includes filter 112.” Appeal Br. 5.

In response to Appellant’s arguments, despite the explicit definition of “located adjacent the top opening of the microcavity” set forth in Appellant’s Specification, the Examiner determines in the Answer that “[u]sing the broadest reasonable interpretation of ‘adjacent’ the term is considered to be ‘not distant or nearby.’ Adjacent does not necessarily mean sharing a border or in intimate contact, but also may include interpretations of being in close proximity.” Ans. 14.

It is well-settled, however, that “[w]hen a patentee explicitly defines a claim term in the patent specification, the patentee’s definition controls.” *Martek Biosciences Corp. v. Nutrinova, Inc.*, 579 F.3d 1363, 1380 (Fed. Cir. 2009). And “[w]hen the specification ‘makes clear that the invention does not include a particular feature, that feature is deemed to be outside the reach of the claims of the patent, even though the language of the claims, read without reference to the specification, might be considered broad enough to encompass the feature in question.’” *Microsoft Corp. v. Multi-Tech Sys., Inc.*, 357 F.3d 1340, 1347 (Fed. Cir. 2004) (quoting *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1341 (Fed. Cir. 2001)).

The Examiner’s interpretation of “adjacent” as “not distant or nearby” and “being in close proximity” is inconsistent with the explicit definition of “located adjacent the top opening of the microcavity” provided in Appellant’s Specification. Consequently, the Examiner’s interpretation of “adjacent” does not constitute a broadest *reasonable* interpretation of this term as it used in the phrase “located adjacent the top opening of the microcavity” recited in claim 1. *In re Baker Hughes, Inc.*, 215 F.3d 1297,

1303 (Fed. Cir. 2000) (the PTO cannot adopt a construction that is “beyond that which was reasonable in light of the totality of the written description” in the Specification); *In re Zletz*, 893 F.2d 319, 321–22 (Fed. Cir. 1989) (“During patent examination the pending claims must be interpreted as broadly as their terms reasonably allow. When the applicant states the meaning that the claim terms are intended to have, the claims are examined with that meaning, in order to achieve a complete exploration of the applicant’s invention and its relation to the prior art.”).

Figures 1, 2, and 5 of Rajagopal show that second end 116 of receptacle portion 106 is joined to filter housing 132 containing filter 112 through filter connection assembly 120. In other words, intervening filter connection assembly 120 separates second end 116 from filter housing 132 containing filter 112. Contrary to the Examiner’s assertions, second end 116, therefore, does not extend right up to—or is not “adjacent”—the top opening of the asserted “microcavity” formed by filter housing 132 having filter 112 as a base, or the asserted “microcavity” comprised of recesses formed in the filter.

Consequently, on the record before us, the Examiner does not provide a sufficient factual basis to establish that Rajagopal discloses, or would have suggested, a sample detection container including a microcavity having a top opening, and a wall that extends to the microcavity, at least a portion of which is located adjacent the top opening of the microcavity, as required by claim 1. We, accordingly, do not sustain the Examiner’s rejection of claim 1, and claims 2–22, which each depend from claim 1, under 35 U.S.C. § 102(a)(2) as anticipated by Rajagopal. Nor do we sustain the Examiner’s

Appeal 2019-002918
Application 15/105,448

rejection of claim 1, and claims 2–22, which each depend from claim 1,
under 35 U.S.C. § 103 as unpatentable over Rajagopal.

CONCLUSION

| Claims | 35 U.S.C. § | Reference(s)/Basis | Affirmed | Reversed |
|------------------------|-------------|--------------------|----------|-------------|
| 1–22 | 102(a)(2) | Rajagopal | | 1–22 |
| 1–22 | 103 | Rajagopal | | 1–22 |
| Overall Outcome | | | | 1–22 |

REVERSED