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SHAIKH, MERAJ A	

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte THEODORE F. BAUMANN, JOE H. SATCHER JR., and JOSEPH C. FARMER

Appeal 2018-005336
Application 13/457,331
Technology Center 3700

Before MICHAEL C. ASTORINO, CYNTHIA L. MURPHY, and ALYSSA A. FINAMORE, *Administrative Patent Judges*.

ASTORINO, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant[1] appeals from the Examiner's decision to reject claims 1–15, 21, 27, and 28. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

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[1] We use the word "Appellant" to refer to "applicant" as defined in 37 C.F.R. § 1.42. The Appellant identifies the real party in interest as Lawrence Livermore National Security, LLC. Appeal Br. 2.

STATEMENT OF THE CASE

Claimed Subject Matter

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

> 1. A product comprising a highly adsorptive structure, the highly adsorptive structure comprising:
>
> a corrugated substrate having a plurality of peaks and valleys, the valleys being defined between the peaks, wherein each of the valleys of the substrate has a plurality of microchannels extending therealong; and
>
> a metal-organic framework (MOF) comprising a plurality of metal oxide components interconnected with each other by a plurality of organic spacer molecules thereby creating a network of continuous pores defined by the metal oxide components interconnected with each other by the plurality of organic spacer molecules for adsorbing and retaining a fluid;
>
> wherein the MOF is coupled to at least one interior and/or exterior surface of the plurality of microchannels of the substrate,
>
> wherein the MOF is configured to adsorb and desorb a refrigerant under predetermined thermodynamic conditions.

Rejections

Claims 15 and 27 are rejected under 35 U.S.C. § 112, second paragraph, as indefinite.

Claims 1–4, 6–9, 12–14, and 28 are rejected under 35 U.S.C. § 103(a) as unpatentable over Hwang (US 2011/0067426 A1, published Mar. 24, 2011) and Brownawell (WO 2006/127652, published Nov. 30, 2006).[2]

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[2] The heading of the rejection omits claim 28 (Final Act. 3), but the Examiner analyzes claim 28 in the body of the rejection (*id*. at 5). We

Claims 5 and 21 are rejected under 35 U.S.C. § 103(a) as unpatentable over Hwang, Brownawell, and Farmer (US 8,613,204 B2, issued Dec. 24, 2013).[3]

Claims 10 and 11 are rejected under 35 U.S.C. § 103(a) as unpatentable over Hwang, Brownawell, and Maus (US 5,157,010, issued Oct. 20, 1992).

Claim 15 is rejected under 35 U.S.C. § 103(a) as unpatentable over Hwang, Brownawell, and Minhas (US 8,425,674 B2, issued Apr. 23, 2013).

Claim 27 is rejected under 35 U.S.C. § 103(a) as unpatentable over Hwang, Brownawell, Minhas, and Farmer.

ANALYSIS

Indefiniteness

In the Non-Final Office Action, mailed November 7, 2016, the Examiner rejected claim 15 as indefinite because it recited, "a first highly adsorptive structure as recited in claim 1." Non-Final Act. 2. The Examiner also rejected claim 27 on the same basis. *Id.* The Examiner suggested changing the claim language to "the highly adsorptive structure as recited in claim 1" so that the language would be consistent with that of claim 1. *Id.* at 2–3.

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consider the rejection to include claim 28, which is consistent with the Appellant's understanding of the rejection (Appeal Br. 13).

[3] Although the Examiner sets forth separate statements for the rejection of claim 5 (Final Act. 5) and claim 21 (*id.* at 8), we consolidate the statements into a single ground of rejection because they are each based upon the same combination of references.

In a subsequent response — namely, "Amendment C," filed February 7, 2017 — the Appellant amended the language of claims 15 and 27 as suggested by the Examiner. *See* Amendment C 4–5, 7, 8.

In the Final Office Action, mailed June 2, 2017, the Examiner maintained the rejection of claims 15 and 27 as indefinite. Final Act. 2. In this correspondence, the Examiner did not acknowledge the amendment to claims 15 and 27.

In the Appeal Brief, filed October 19, 2017, the Appellant explains that the Examiner's rejection of claims 15 and 27 was previously addressed by Amendment C and argued that the amendment obviated the rejection. Appeal Br. 32–33. The Appellant argued the indefiniteness rejection under a heading titled "Issue #8" and the obviousness rejections under the same construction, i.e., Issues #1–7. Appeal Br., *passim*.

In the Examiner's Answer, the Examiner groups together the Appellant's arguments concerning the indefiniteness rejection, i.e., Issue #8, with some of the obviousness rejections, i.e., Issues #3–7. Ans. 2–3.

Based on the foregoing, we determine that the Examiner fails to account for claims 15 and 27 as currently pending and appealed. Accordingly, the Examiner's response fails to properly address the Appellant's argument concerning the indefiniteness rejection. Thus, we do not sustain the Examiner's rejection of claims 15 and 27.

Obviousness

The Appellant argues that the Examiner's conclusion of obviousness improperly relies on prior art that is not analogous. Appeal Br. 19–22. Namely, the Appellant argues that Brownawell is not analogous art. *Id.* The

Appellant cites *In re Bigio*, 381 F.3d 1320 (Fed. Cir. 2004), to explain the proper standard for determining whether a reference is analogous. *Id.* at 19. *Bigio* holds:

> [t]wo separate tests define the scope of analogous prior art: (1) whether the art is from the same field of endeavor, regardless of the problem addressed and, (2) if the reference is not within the field of the inventor's endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved.

In re Bigio, 381 F.3d at 1325. The Appellant argues that "Brownawell is outside the Appellant's field of endeavor" (Appeal Br. 19) and "is not reasonably pertinent to the problem with which Appellant is concerned." *Id.* at 21.

The Examiner finds that Brownawell is analogous art because it is same field of endeavor as the Appellant. Ans. 5–6. The Examiner does not explain on this record how Brownawell is reasonably pertinent to the particular problem with which the Appellant is involved.

The Appellant asserts that Brownawell is functionally and structurally different from the Appellant's field of endeavor. Appeal Br. 19–21. For example, the Appellant points out that the function of the claimed invention is directed to adsorbing and retaining a fluid, whereas Brownawell's filter system lets oil pass through the various filter members; namely, chemically active filter member 20 and inactive size-exclusion filter member 22. Appeal Br. 20 (citing Brownawell ¶ 161, Fig. 11).

In response, the Examiner appears to identify Brownawell's field of endeavor as "relat[ing] to using combination [sic] of substrate particles with layer [sic] of base fluid deposited on the substrate, where the porous substrate particles having micro-pores and having ridges and valleys on the

outer surface of the substrate." Ans. 5. Thereafter, the Examiner appears to compare Brownawell's and Hwang's teachings as they relate to the subject matter of claim 1 for the purpose of further explaining the rejection. *Id.* at 5–6.

As for the Appellant's "field of endeavor," the Specification describes the "the field of the invention" — which is tantamount to the "field of endeavor" — as "relat[ing] to metal organic frameworks (MOFs), and particularly, to high-surface area MOFs as adsorbents for adsorptive cooling systems and methods of use thereof." Spec. ¶ 2. In contrast, Brownawell describes its field of invention as "relat[ing] to lubrication systems for use with internal combustion engines and more particularly, to a lubrication system that reduces the formation of combustion by-products without reducing the performance of the lubricant in lubricating the internal combustion engine." Brownawell ¶ 2. We determine that on this record the Examiner fails to adequately explain how Brownawell is from the same field of endeavor as the Appellant. And, as indicated above, the Examiner does not explain on this record how Brownawell is reasonably pertinent to the particular problem with which the Appellant is involved. Consequently, the Appellant's argument persuades us that Examiner fails to establish that Brownawell is an analogous prior art reference.

Thus, we do not sustain the Examiner's rejection of claims 1–4, 6–9, and 12–14 as being unpatentable over Hwang and Brownawell. We likewise do not sustain the Examiner's rejections of claims 5, 10, 11, 15, 21, and 27.

CONCLUSION

In summary:

Claims Rejected	35 U.S.C. §	References/Basis	Affirmed	Reversed
15, 27	112, second paragraph	Indefiniteness		15, 27
1–4, 6–9, 12–14, 28	103(a)	Hwang, Brownawell		1–4, 6–9, 12–14, 28
5, 21	103(a)	Hwang, Brownawell, Farmer		5, 21
10, 11	103(a)	Hwang, Brownawell, Maus		10, 11
15	103(a)	Hwang, Brownawell, Minhas		15
27	103(a)	Hwang, Brownawell, Minhas, Farmer		27
Overall Outcome				1–15, 21, 27, 28

REVERSED