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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte XIAOMING REN

Appeal 2017-011043
Application 13/723,389¹
Technology Center 1700

Before LINDA M. GAUDETTE, JEFFREY B. ROBERTSON, and
SHELDON M. McGEE, *Administrative Patent Judges*.

McGEE, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134, Appellant seeks our review of the
Examiner's rejection of claims 1–17, 19, and 20. Br. 3.

We have jurisdiction. 35 U.S.C. § 6.

We affirm.

¹ Appellant is the Applicant, U.S. Army Research Laboratory. The real party in interest is identified as the United States Government as represented by the Secretary of the Army. Br. 3.

BACKGROUND

The independent claims on appeal are directed to an apparatus for generating hydrogen gas (claim 1), and a wearable power unit containing such apparatus (claim 20).

Claim 1 is illustrative of the appealed subject matter, and is copied below from the Claims Appendix to the Appeal Brief:

1. A hydrogen gas generating apparatus, comprising:
 - a first chamber;
 - a first mixture comprising a chemical hydride and a catalyst disposed within the first chamber;
 - a second chamber coupled to the first chamber;
 - a connector;
 - a third chamber coupled by the connector to the second chamber, wherein the third chamber is fluidly coupled to the first chamber;
 - a sealing element coupled to at least one of the second chamber or the third chamber;
 - an outlet fluidly coupled to the first chamber; and
 - a resilient member disposed within the third chamber and configured to control the flow of water into the first chamber via movement of the resilient member in response to hydrogen gas pressure within the apparatus.

Br. 35–36.

REFERENCES

| | | |
|-------------------------------|--------------------|---------------|
| Redmond | US 2004/0023087 A1 | Feb. 5, 2004 |
| Jorgensen | US 2004/0071630 A1 | Apr. 15, 2004 |
| Harding et al. ("Harding") | US 2005/0095470 A1 | May 5, 2005 |
| Marsh et al. ("Marsh") | US 2005/0158595 A1 | July 21, 2005 |
| Sarata et al. ("Sarata") | US 2006/0147776 A1 | July 6, 2006 |

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| Withers-Kirby et al. ("Withers-Kirby") | US 2007/0020172 A1 | Jan. 25, 2007 |
| Wallace et al. ("Wallace '426") | US 2010/0247426 A1 | Sept. 30, 2010 |
| Wallace et al. ("Wallace '054") | US 2012/0115054 A1 | May 10, 2012 |
| Lin et al. ("Lin") | US 2012/0171083 A1 | July 5, 2012 |

REJECTIONS

The claims are rejected as follows:

- I. Claims 1–5, 8–11, 13, 17, and 19 under 35 U.S.C. § 103(a) as unpatentable over Lin in view of Withers-Kirby and Sarata;
- II. Claims 6, 7, and 16 under 35 U.S.C. § 103(a) as unpatentable over Lin in view of Withers-Kirby and Sarata, and further in view of Marsh;
- III. Claim 12 under 35 U.S.C. § 103(a) as unpatentable over Lin in view of Withers-Kirby and Sarata, and further in view of Harding;
- IV. Claim 14 under 35 U.S.C. § 103(a) as unpatentable over Lin in view of Withers-Kirby and Sarata, and further in view of Wallace '054;
- V. Claim 15 under 35 U.S.C. § 103(a) as unpatentable over Lin in view of Withers-Kirby and Sarata, and further in view of Wallace '426;
- VI. Claim 18 under 35 U.S.C. § 103(a) as unpatentable over Lin in view of Withers-Kirby and Sarata, and further in view of Jorgensen; and

- VII. Claim 20 under 35 U.S.C. § 103(a) as unpatentable over Lin in view of Withers-Kirby and Sarata, and further in view of Redmond.

OPINION

We have considered Appellant’s arguments for patentability (Br. 7–33) and are unpersuaded that Appellant has identified reversible error in the Examiner’s rejections. *In re Jung*, 637 F.3d 1356, 1365–66 (Fed. Cir. 2011). Therefore, we sustain the obviousness rejections of claims 1–17, 19, and 20 based on the findings of fact, conclusions of law, and rebuttals to arguments well-expressed by the Examiner in the Final Action and in the Answer. We add the following only for emphasis.

Several of Appellant’s arguments are made against the individual references cited by the Examiner, and do not address what the collective teachings of the references would have suggested to the skilled artisan. Br. 7–11, 27–31. Such arguments, without more, do not identify error in the rejection because it is well-settled that “[n]on-obviousness cannot be established by attacking references individually where the rejection is based upon the teachings of a combination of references. . . . [The reference] must be read, not in isolation, but for what it fairly teaches in combination with the prior art as a whole.” *In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986) (citation omitted). Where Appellant does discuss the combination of references, Appellant advances incomplete arguments that do not fully address the Examiner’s mapping as set forth in the rejection. For example, Appellant alleges “neither [Withers nor Sarata] discloses a third chamber.” Br. 11. The Examiner, however, does not rely on the Withers and Sarata references for a teaching of a third chamber, but rather relies on Li for this

finding. Final 3. *See also* Br. 28–31 (where Appellant alleges that the principle of operation of Withers would be changed if combined with Lin and Sarata for reasons that do not address the Examiner’s sole reason for relying on Withers, i.e., the use of Wither’s catalyst to “promote hydrogen formation” (Final 3–4)). Here, we agree with the Examiner (Ans. 34–35) that “Withers is cited only for the use of [a] catalyst,” and “[i]t is not suggested, nor necessary that [Withers, Sarata, and Lin] be combined in their entirety.”

Also, Appellant advances several arguments for patentability based on limitations that do not appear in the claims. *See* Br. 10 (“Lin . . . fails to teach or suggest a reusable and regulatable hydrogen generator.”); *see also id.* at 12 (“Appellant’s disclosure teaches two chemical components of hydrogen generation (water and chemical) that are mixed when hydrogen is needed at the place of use.”); *id.* at 13 (regarding Appellant’s purported disclosure of self-metered water collected at the point of use, orientation independent operation, the compression pressure applied, and using the remaining water level as an “automatic indicator of remaining hydrogen reserve”). The predecessor to our reviewing court has held, however, that such arguments “fail from the outset because . . . they are not based on limitations appearing in the claims.” *In re Self*, 671 F.2d 1344, 1348 (CCPA 1982). *See* Ans. 19–20, 23–25.

Also, several of Appellant’s arguments reflect a misunderstanding of what is required to establish a prima facie case of obviousness. In particular, the prior art relied upon need not suggest the desirability of the modification as Appellant suggests. Br. 18, 19, 23, 25, 26, 32–33. Rather, the “interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background

knowledge possessed by a person having ordinary skill in the art, all [can provide] an apparent reason to combine the known elements in the fashion claimed.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007). Also, Appellant’s repeated contention that “[o]bvious to try, however, is not the standard by which obviousness is determined under 35 U.S.C. §103” is a misstatement of the law. Br. 21, 25, 32; *see KSR*, 550 U.S. at 421 (explaining that it is erroneous to conclude “that a patent claim cannot be proved obvious merely by showing that the combination of elements was ‘[o]bvious to try’”).

Furthermore, Appellant’s repeated conclusory assertions that the Examiner employed impermissible hindsight in reaching various obviousness determinations fall short of identifying reversible error. Br. 10, 15, 16, 19–25. On this record, we see no evidence of such alleged hindsight. Rather, upon reviewing the Examiner’s fact findings, the cited prior art, and the obviousness rationales discussed in the Final Office Action and the Answer, we determine that the Examiner complied with the requirements of 35 U.S.C. § 103(a) and applicable case law.

Here, we highlight one such unpersuasive allegation of hindsight regarding the rejection of claim 2. Claim 2 depends from claim 1 and additionally requires that the first chamber is detachable from the second chamber. Br. 36. The Examiner reasoned that the skilled artisan would have realized making the chambers detachable “would provide access to both the solid reactant and filtering element, thus allowing these components to be replaced or cleaned.” Final Act. 5. Appellant argued that “[t]he Examiner has not pointed to any *teachings in the Appellant’s disclosure* that refers to *cleaning or reusing* the first or second chambers.” Br. 15–16 (emphasis added). As well-stated by the Examiner, however, “[t]he fact that

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Appellant's disclosure lacks a teaching for cleaning or replacing components indicates that this rationale is not hindsight." Ans. 25.

For these reasons, and those provided by the Examiner, we are of the opinion that Appellant has failed to identify reversible error in the Examiner's rejections of claims 1–17, 19 and 20. We, therefore, sustain the Examiner's rejections of these claims.

DECISION

The Examiner's final decision to reject claims 1–17, 19, and 20 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED