NOTE: This disposition is nonprecedential.

United States Court of Appeals for the Federal Circuit

AKER BIOMARINE ANTARCTIC AS,
Appellant

v.

RIMFROST AS,
Appellee

2019-1078

Appeal from the United States Patent and Trademark Office, Patent Trial and Appeal Board in No. IPR2017-00746.

AKER BIOMARINE ANTARCTIC AS,
Appellant

v.

RIMFROST AS,
Appellee

2019-1097

Appeal from the United States Patent and Trademark Office, Patent Trial and Appeal Board in No. IPR2017-00745.

Decided: October 3, 2019

JOHN MITCHELL JONES, Casimir Jones, S.C., Middleton, WI, for appellant.

JAMES FRANCIS HARRINGTON, Hoffmann & Baron, LLP, Syosset, NY, for appellee. Also represented by RONALD J. BARON, JOHN T. GALLAGHER; MICHAEL I. CHAKANSKY, Hoffmann & Baron LLP, Parsippany, NJ.

Before LOURIE, PLAGER, and TARANTO, *Circuit Judges.*

LOURIE, *Circuit Judge.*

Aker Biomarine Antarctic AS ("Aker") appeals from two final written decisions of the U.S. Patent and Trademark Office Patent Trial and Appeal Board ("the Board") in two *inter partes* review proceedings holding claims 1–19 of U.S. Patent 9,028,877 ("the '877 patent) and claims 1–20 of U.S. Patent 9,078,905 ("the '905 patent") unpatentable as obvious. *See Rimfrost AS v. Aker Biomarine Antarctic AS*, No. IPR2017-00746, 2018 WL 3857128 (P.T.A.B. Aug. 10, 2018) ("*877 Decision*"); *Rimfrost AS v. Aker Biomarine Antarctic AS*, No. IPR2017-00745, 2018 WL 3857126 (P.T.A.B. Aug. 10, 2018) ("*905 Decision*"). For the reasons detailed below, we *affirm*.

BACKGROUND

The '877 and '905 patents share a written description and concern bioeffective krill oil. According to the description, in the prior art, Antarctic krill was challenging to use to produce krill oil because lipases would degrade the oil

during storage and transport. *See* '877 patent col. 2 ll. 3–6. To address this problem, the patents propose treating the krill to denature lipases and phospholipases, which can reduce enzymatic decomposition of glycerides and phospholipids. *See id.* col. 9 ll. 44–51. The '877 patent claims a method of producing krill oil and encapsulating it, while the '905 patent claims encapsulated krill oil of various compositions. According to the specification, krill oil can be useful for "decreasing cholesterol, inhibiting platelet adhesion, inhibiting artery plaque formation, preventing hypertension, controlling arthritis symptoms, preventing skin cancer, enhancing transdermal transport, reducing . . . premenstrual symptoms or controlling blood glucose levels in a patient." *Id.* col. 1 ll. 46–52.

Claim 1 of the '877 patent is exemplary of that patent, and it recites "[a] method of production of krill oil comprising: a) providing krill; b) treating said krill to denature lipases and phospholipases in said krill to provide a denatured krill product; and c) extracting oil from said denatured krill product with a polar solvent. . . ." *Id.* col. 34 ll. 59–64. Steps a) and b) "are performed on a ship." *Id.* col. 35 l. 2. The claim further requires that the extracted krill oil be composed of "from about 3% to about 10% w/w ether phospholipids; from about 27% to 50% w/w non-ether phospholipids so that the amount of total phospholipids in said krill oil is from about 30% to 60% w/w; and from about 20% to 50% w/w triglycerides." *Id.* col. 34 l. 64–col. 35 l. 2. Of particular relevance here is the composition of the krill oil.

The claims of the '905 patent are drawn to encapsulated krill oil of compositions. Exemplary is claim 12, which recites "[e]ncapsulated krill oil comprising: a capsule containing an effective amount of krill oil." '905 patent, col. 36 ll. 29–30. Similar to the oil claimed in the '877 patent, the encapsulated krill oil comprises "from about 3% to about 10% w/w ether phospholipids; from about 27% to 50% w/w non-ether phospholipids so that the amount of total

phospholipids in the composition is from about 30% to 60% w/w; and from about 20% to 50% w/w triglycerides." *Id.* col. 36 ll. 32–36.

Rimfrost AS ("Rimfrost") petitioned for *inter partes* review of claims of both patents, and the Board determined that claims 1–19 of the '877 patent and claims 1–20 of the '905 patent would have been obvious in view of a combination of references.[1] To satisfy the claim limitations requiring treating the krill with heat to denature lipases and extracting the krill oil with a polar solvent, the Board relied on Brievik,[2] Catchpole,[3] and Fricke 1984.[4] To satisfy the composition recited in claim 1, the Board relied on Catchpole to disclose the total, ether, and non-ether phospholipid parameters. The Board then relied on Fricke 1984 to disclose the triglyceride levels recited in the claim. *877 Decision*, 2018 WL 3857128, at *11–12.

Before the Board, Aker did not dispute that the references taught every limitation in the claims. *877 Decision*, 2018 WL 3857128, at *12. Aker did dispute, however, whether a person of skill would have had a motivation to combine the references with a reasonable expectation of success and whether the prior art taught away from using krill oil to treat inflammatory conditions. The Board rejected Aker's arguments.

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[1] Because the Board's reasoning in the *'877 Decision* as relevant to this appeal is largely representative of its reasoning in the *905 Decision*, we refer only to the *877 Decision*.

[2] U.S. Patent App. Pub. 2010/0143571.

[3] WO 2007/123424.

[4] Fricke et al., Lipid, *Sterol and Fatty Acid Composition of Antarctic Krill (Euphausia superba Dana)*, 19 LIPIDS 821 (1984).

Aker appealed. We have jurisdiction under 35 U.S.C. §§ 141(c), 319, and 28 U.S.C. § 1295(a)(4)(A), and we have combined these appeals for disposition in one opinion.

DISCUSSION

Our review of a Board decision is limited. *In re Baxter Int'l, Inc.*, 678 F.3d 1357, 1361 (Fed. Cir. 2012). We review the Board's legal determinations *de novo*, *In re Elsner*, 381 F.3d 1125, 1127 (Fed. Cir. 2004), but we review the Board's factual findings underlying those determinations for substantial evidence, *In re Gartside*, 203 F.3d 1305, 1316 (Fed. Cir. 2000). A finding is supported by substantial evidence if a reasonable mind might accept the evidence as adequate to support the finding. *Consol. Edison Co. v. NLRB*, 305 U.S. 197, 229 (1938). "Where there is adequate and substantial evidence to support either of two contrary findings of fact, the one chosen by the board is binding on the court regardless of how we might have decided the issue if it had been raised de novo." *Mishara Constr. Co. v. United States*, 230 Ct. Cl. 1008, 1009 (1982).

Obviousness is a question of law based on underlying facts, including the scope and content of the prior art, differences between the prior art and the claims at issue, the level of ordinary skill, and relevant evidence of secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). Whether a skilled artisan would have been motivated to combine prior art references is also a question of fact. *Wyers v. Master Lock Co.*, 616 F.3d 1231, 1238–39 (Fed. Cir. 2010).

In these two appeals, Aker raises two arguments. Challenging the Board's decision in both patents, Aker first argues that a person of skill would not have been motivated to combine the asserted references. Second, although the Board rejected Aker's teaching away argument for the same reasons in both decisions, Aker challenges the Board's finding only for the '905 patent that the prior art

did not teach away from using krill oil to treat inflammatory conditions. We consider each argument in turn.

Aker argues that a person of skill would not have been motivated to combine Fricke 1984 with Breivik or Catchpole, focusing on two of the Board's fact findings. First, Aker contends that because the krill oils analyzed in the references were obtained using different starting materials and extraction methods, a person of skill in the art would not have combined them. Appeal No. 19-1078, Appellant's Br. 18–19. Aker urges us to consider testimony from its expert, Dr. Hoem, who opined that a person of skill in the art would have thought it was "not scientifically valid" to choose lipid components from multiple references. *Id.* at 20. Second, Aker suggests that Dr. Tallon, Rimfrost's expert, admitted that the ether phospholipid content of Fricke 1984's krill oil was actually at most 1.5%. *Id.* at 22–23. According to Aker, this testimony suggests that a person of skill would not have mixed and matched values for lipid components in extracts that are obtained from different starting materials. *Id.*

We disagree with Aker and find the Board's decision to have been supported by substantial evidence. After weighing the evidence, the Board found that the lipid components of krill oil can be extracted using any number of suitable solvents, that the proportions of the components could be varied in predictable ways, and that the resulting extracts could be blended to produce a final krill oil product. The Board credited expert testimony from Dr. Tallon that a person of skill could draw on an extensive body of established, industrial knowledge of methods and parameters that could be used to produce a stable product with known compositions that were minimally impacted by the harvesting and pre-processing. *877 Decision*, 2018 WL 38557128, at *18. Aker does not suggest that Dr. Tallon's testimony is unreliable or that the testimony should be disregarded. Instead, it requests that we credit its expert's testimony, but the Board was well within its discretion to

credit Dr. Tallon over Dr. Hoen. *See Yorkey v. Diab*, 601 F.3d 1279, 1284 (Fed. Cir. 2010) ("[T]he Board was well within its discretion to give more credibility to [one expert's] testimony over [another's] unless no reasonable trier of fact could have done so.").

As for Aker's argument that Dr. Tallon opined that Fricke 1984 only contained 1.5% ether phospholipids, we are not persuaded that the Board relied on Fricke 1984's ether phospholipid content for its obviousness holding. Instead, the Board relied on those values from Catchpole and combined them with the triglyceride content in Fricke 1984. *See 877 Decision*, 2018 WL 3857128, at *15.

Aker appears to argue that the court should have credited its expert's analysis of the Fricke 1986 reference,[5] which comments on the ether phospholipid content of the sample tested in Fricke 1984. But the Board credited Catchpole over Fricke 1986 because Catchpole used a more reliable measuring technique—nuclear magnetic resonance—and Aker does not challenge this fact finding. Considering the record before the Board, we conclude that the Board's finding of motivation to combine was amply supported.

Aker's second argument addresses the encapsulated krill oil claims. According to Aker, the prior art taught away from using ether phospholipids for treatment of inflammatory conditions, including premenstrual syndrome, because ether phospholipids can degrade into pro-inflammatory compounds with Platelet Activating Factor (PAF) activity. Appeal No. 19-1097, Appellant's Br. 34–40. For

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[5] Fricke and G. Gercken, *1-O-Alkylglycerolipids in Antarctic Krill (Euphausia Superba Dana)*, 85B COMP. BIOCHEM. PHYSIOL. 131 (1986).

this argument, Aker cites the Tanaka I reference[6] to argue that the art was concerned with the presence of ether phospholipids in foodstuffs such as krill oil.

We disagree with Aker, however, and find the Board's decision to have been supported by substantial evidence. "The court should consider a range of real-world facts to determine 'whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.'" *Arctic Cat Inc. v. Bombardier Recreational Prods. Inc.*, 876 F.3d 1350, 1359 (Fed. Cir. 2017) (quoting *Intercontinental Great Brands LLC v. Kellogg N. Am. Co.*, 869 F.3d 1336, 1344 (Fed. Cir. 2017)), *cert. denied*, 139 S. Ct. 143 (2018). Here, perhaps most probative is the fact that, at the time of the invention, encapsulated krill oil was on sale and generally recognized as safe. Given that krill oil with ether phospholipids was on sale and, absent any evidence suggesting that the capsules were somehow pro-inflammatory or dangerous, the Board's finding that the art did not teach away from supplements containing krill oil is certainly supported by substantial evidence.

CONCLUSION

We have considered Aker's remaining arguments, but we find them to be unpersuasive. Accordingly, the decisions of the Board holding unpatentable claims 1–19 of the '877 patent and claims 1–20 of the '905 patent are supported by substantial evidence and are affirmed.

AFFIRMED

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[6] Tanaka et al., *Platelet-Activating Factor (PAF)-Like Phospholipids Formed During Peroxidation of Phosphatidylcholines from Different Foodstuffs*, 59 BIOSCI. BIOTECH. BIOCHEM. 1389 (1995).