NOTE: This disposition is nonprecedential.

United States Court of Appeals for the Federal Circuit

VALENCELL, INC.,
Appellant

v.

FITBIT, INC.,
Appellee

2018-2224, 2018-2225

Appeals from the United States Patent and Trademark Office, Patent Trial and Appeal Board in Nos. IPR2017-00317, IPR2017-00318, IPR2017-01553, IPR2017-01554.

Decided: September 26, 2019

DANIEL FLETCHER OLEJKO, Bragalone Conroy PC, Dallas, TX, argued for appellant. Also represented by JEFFREY BRAGALONE, THOMAS WILLIAM KENNEDY, JR., JUSTIN KIMBLE, JONATHAN H. RASTEGAR.

KEVIN P.B. JOHNSON, Quinn Emanuel Urquhart & Sullivan, LLP, Redwood Shores, CA, argued for appellee. Also represented by MARK YEH-KAI TUNG; SAM STEPHEN STAKE, OGNJEN ZIVOJNOVIC, San Francisco, CA; HARPER BATTS,

CHRISTOPHER SCOTT PONDER, Sheppard Mullin Richter & Hampton LLP, Palo Alto, CA.

Before TARANTO, CHEN, and STOLL, *Circuit Judges*.

CHEN, *Circuit Judge*.

Valencell appeals from the final written decisions of the United States Patent and Trademark Office Patent Trial and Appeal Board (Board) in the above-captioned *inter partes* review proceedings (IPRs) that found unpatentable claims 1–6, 8–16, and 18–20 of U.S. Patent No. 8,989,830 and claims 1–10 of U.S. Patent No. 8,886,269. J.A. 59; J.A. 125. The two patents at issue share a specification describing light-based monitoring devices for physiological measurements of a patient's body. The '269 and '830 patents each claim the use of window(s) in a cladding layer to serve as light-guiding interfaces between an emitter and detector and the subject's body. '269 patent at claim 1; '830 patent at claims 1, 11. For this appeal, the relevant unpatentability grounds are various combinations of a publication by Asada,[1] U.S. Patent No. 4,830,014 (Goodman), and U.S. Patent No. 6,745,061 (Hicks). We affirm.

A. APA and Due Process

Valencell's primary complaint on appeal alleges that the Board adopted arguments from petitioner Fitbit's Reply briefing that were not raised in Fitbit's petition. But Valencell fails to identify anything beyond the back and forth between petitioner and patent owner that is typical in an adversarial proceeding. *Idemitsu Kosan Co. v. SFC Co.*, 870 F.3d 1376, 1381 (Fed. Cir. 2017). First, Valencell

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[1] H. Harry Asada, *Mobile Monitoring with Wearable Photoplethysmographic Biosensors*, IEEE ENGINEERING IN MEDICINE AND BIOLOGY MAGAZINE, May–June 2003, at 28.

alleges that the Board improperly relied on Goodman's Fig. 7A in its analysis of the claimed window that serves as a light-guiding interface. But the Board does not cite to Fig. 7A. Instead, the Board relied on Goodman's Fig. 2C, which is the same figure that Fitbit's petition cited as disclosing the claimed light-guiding window. *Compare* J.A. 16–20 (final written decision) with J.A. 164–65 (petition). To the extent that the Board considered Fitbit's explanation of why Valencell's interpretation of Fig. 2C was incorrect in view of Fig. 7A, the Board was permitted to do so to evaluate whether Fig. 2C—relied upon in the initial petition—disclosed the claimed light-guiding window.

We are also not persuaded that the Board improperly considered Fitbit's rebuttals to Valencell's arguments that (1) dotted lines in one of Asada's layers represent openings in that layer, and (2) Asada's prototype B did not contain the processor and transmitter components disclosed in connection with prototype A. If anything, Valencell is the party that first raised these issues, and Fitbit was entitled to counter by explaining why the theories in the initial petition as to what Asada discloses were correct despite Valencell's arguments to the contrary.

B. Obviousness over Asada and Goodman

With respect to the combination of Asada and Goodman, we are not persuaded that the Board erred in finding that a skilled artisan would be motivated to combine Asada and Goodman despite the "detriments" that Valencell alleged would arise. The Board considered Valencell's argument that a skilled artisan would not be motivated to add more artifact-reducing functionality to Goodman in view of Goodman's disclosure that its adhesive-based solution eliminates motion artifacts. J.A. 104. The Board explained that Goodman utilizes skin conformance to eliminate a specific type of motion artifact arising from relative motion between the device and the wearer's skin. J.A. 105–06. As the Board observed based on testimony from Valencell's

own expert, it was "undisputed that there can be other types of motion artifacts that may occur besides those due to the motion of the device relative to the skin." J.A. 106–07. Thus, "[t]he need to address different sources of motion artifacts supports Petitioner's rationale to combine." J.A. 107.

The Board further explained that both Goodman and Asada are similarly used for patient treatment in hospital settings. J.A. 105; *see also* J.A. 863 ("For hospital inpatients . . . wearable CV sensors could increase inpatient comfort and may even reduce the risk of tripping and falling"); J.A. 870 (describing patient testing with Asada's prototype B at Massachusetts General Hospital); Goodman at col. 5, ll. 3–5 ("The present invention is directed to providing non-invasive, reliable, and continuous monitoring of the vital signs of a patient requiring intensive care"). The Board's conclusion that one of skill would be motivated to combine Asada and Goodman is supported by substantial evidence. We have considered the remaining "detriments" that Valencell alleges would result from combining Asada and Goodman and do not find them persuasive.

C. Hicks-based Combinations

Valencell's primary argument against the combination of Asada and Hicks and the combination of Goodman and Hicks relies on a passage in Asada explaining differences between reflective-type photoplethysmographs (PPGs), in which an emitter and detector are placed on the same side of, e.g., a subject's finger, and transmittal-type PPGs where the emitter and detector are placed on opposite sides of the finger. J.A. 866. Specifically, Asada discloses that, because of the relative locations of the emitter and detector, reflective PPGs are susceptible to short circuit paths through which light can travel directly from the emitter to the detector, but transmittal-type PPGs do not suffer from this issue. *Id.*

As Valencell theorizes, reflective PPGs benefit from a lens that focuses light in a specific direction to and from the body, thus avoiding the short-circuit problem. In Valencell's view, transmittal-type PPGs are not faced with the same short-circuit issue and thus can pursue other tradeoffs such as improving robustness at the expense of unfocused light. J.A. 866 (explaining that the transmittal PPG "design allows us to use devices having a weak polarity, which is, in general, more robust against disturbances"). Valencell appears to argue that one would therefore always opt to improve robustness in transmittal-type PPGs by omitting a lens. But we agree with the Board's finding that a generalized statement discussing tradeoffs in design does not rise to the level of discouraging the combination of Asada and Hicks, particularly when Asada and Hicks each discloses a transmittal PPG and Hicks explicitly provides a transmittal PPG that *includes a lens*. J.A. 28–29; J.A. 870 (disclosing "a transmittal PPG ring sensor, Prototype B"); Hicks at col. 8, ll. 3–8 (disclosing LEDs and photodetector "disposed on an opposing surface of the finger); *id*. at col. 13, ll. 39–47 (disclosing a lens structure used in conjunction with a clear substrate "to properly direct/focus the light emitted/received by the emitters/detector"); *Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2006) (explaining that "a given course of action often has simultaneous advantages and disadvantages, and this does not necessarily obviate motivation to combine").

We have considered Valencell's remaining arguments relating to the combination of Asada and Hicks but do not find them persuasive. The Board's findings as to motivation to combine Asada and Hicks are supported by substantial evidence. For similar reasons, the Board's conclusions with regards to the combination of Goodman, which is likewise directed to a transmittal PPG, *see* Goodman at col. 9, ll. 60–64 (describing how light "transilluminates" the

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