NOTE: This disposition is nonprecedential.

United States Court of Appeals for the Federal Circuit

NUCURRENT, INC.,
Appellant

v.

SAMSUNG ELECTRONICS CO., LTD.,
Appellee

2021-1605, 2021-1606, 2021-1607

Appeals from the United States Patent and Trademark Office, Patent Trial and Appeal Board in Nos. IPR2019-01217, PGR2019-00049, PGR2019-00050.

Decided: July 14, 2022

WILLIAM MILLIKEN, Sterne Kessler Goldstein & Fox, PLLC, Washington, DC, argued for appellant. Also represented by MICHAEL BRADLEY RAY, JONATHAN TUMINARO, JON WRIGHT.

CHETAN BANSAL, Paul Hastings LLP, Washington, DC, argued for appellee. Also represented by STEPHEN BLAKE KINNAIRD, NAVEEN MODI, JEFFREY PADE, JOSEPH PALYS, ALLAN SOOBERT; PAUL ANDERSON, Houston, TX.

Before NEWMAN, STOLL, and STARK, *Circuit Judges*.

STOLL, *Circuit Judge*.

NuCurrent appeals from the Patent Trial and Appeal Board's final written decisions in three post-grant proceedings concluding that the challenged claims of U.S. Patent Nos. 9,941,729 and 10,063,100 are unpatentable as obvious. Because substantial evidence supports the Board's conclusions, we affirm.

BACKGROUND

The patents are directed to a compact antenna capable of operating at multiple frequency bands. '100 patent col. 4 ll. 4–7, col. 4 l. 63–col. 5 l. 19. The written description explains that the antenna includes "a first, outer coil," (e.g., coil portion 144), "a second, interior coil," (e.g., coil portion 146), *id.* at col. 10 ll. 26–30, col. 28 ll. 34–40, and "a plurality of terminal connections that are strategically placed on [] first and second inductor coils," (e.g., electrical connection points 148, 150, 152), *id.* at col. 11 ll. 32–44, col. 28 ll. 13–16.

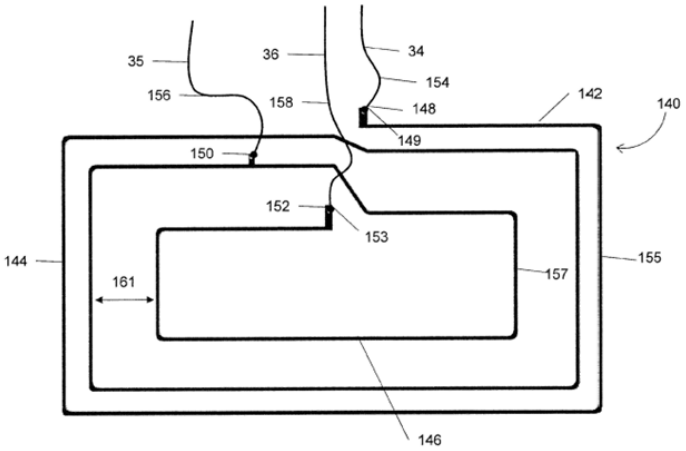

FIG. 9

Id. Fig. 9.

According to the written description, "[c]onnecting the various terminals in different combinations . . . provides the antenna . . . with different adjustable inductances which, in turn, modifies the operating frequency or operating mode of the antenna." *Id.* at col. 13 ll. 32–33. Claim 1 of the '100 patent is representative and recites in relevant part:

> 1. An electrical system, comprising:
>
> a) an antenna, comprising:
>
> i) a first conductive wire forming a first coil . . .
>
> ii) a second conductive wire forming a second coil . . .
>
> iii) a third gap separating an outermost turn of the second coil from the innermost turn of the first coil . . .
>
> iv) *a first terminal* electrically connected to the first end of the first coil, *a second terminal* electrically connected to the second end of the second coil and *a third terminal* electrically connected to either of the first or second coils;
>
> b) a control circuit electrically connected to at least one of the first, second and third antenna terminals, wherein the control circuit is configured to control the operation of the antenna;
>
> c) *wherein a tunable inductance is generatable by electrically connecting two of the first, second, and third terminals* . . . .

Id. at col. 32 l. 40–col. 33 l. 15 (emphasis added to relevant claim elements).[1]

Samsung filed a petition for inter partes review (IPR2019-01217) of various claims of the '729 patent, and two petitions for post-grant review (PGR2019-00049 and PGR2019-00050) of various claims of the '100 patent. J.A. 1–42, J.A. 43–64, J.A. 65–96. In its petitions, Samsung relied on Riehl,[2] the primary prior art reference, to teach an antenna having (1) two coils and (2) first, second, and third terminals connected to the coils that are electrically connectable in various combinations to produce different inductances. J.A. 313–46, J.A. 4812–36.

During the post-grant proceedings, neither Samsung nor the patent owner NuCurrent offered constructions for any terms in the proceedings. J.A. 313, J.A. 461–62, J.A. 4811–12, J.A. 4944. The Board instituted review in each proceeding. J.A. 426, J.A. 2922, J.A. 4905. In its final written decisions, the Board determined that it did not need to explicitly construe any terms in the challenged patents. J.A. 11–12, J.A. 51–52, J.A. 72–73. The Board ultimately concluded that each of the challenged claims were unpatentable as obvious. J.A. 40, J.A. 63, J.A. 95. The Board also determined that the claims were unpatentable for lack of written description. J.A. 63.

NuCurrent appeals. We have jurisdiction under 28 U.S.C. § 1295(a)(4)(A).

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[1] The '729 and '100 patents share a written description and have similar claims. The parties—and our court, in this opinion—thus focus on the '100 patent and PGR2019-00049.

[2] U.S. Patent Pub. No. 2014/0035383.

DISCUSSION

Obviousness is a legal question based on underlying findings of fact. *Fleming v. Cirrus Design Corp.*, 28 F.4th 1214, 1221 (Fed. Cir. 2022). We review the Board's ultimate obviousness determination de novo and underlying factual findings for substantial evidence such that a "reasonable fact finder could have arrived at the agency's decision." *OSI Pharms., LLC v. Apotex Inc.*, 939 F.3d 1375, 1381 (Fed. Cir. 2019) (quoting *In re Gartside*, 203 F.3d 1305, 1312 (Fed. Cir. 2000)). Claim constructions are similarly legal questions that we review de novo. *Dyfan, LLC v. Target Corp*, 28 F.4th 1360, 1364 (Fed. Cir. 2022).

On appeal, NuCurrent argues that the Board's obviousness determination "rests on an incorrect claim construction of the term 'terminal.'" Appellant's Br. 39. According to NuCurrent, "a 'terminal' is a point on a coil that is available for connection to external circuitry." *Id.* at 40. NuCurrent asserts that because the "claimed 'terminals' are terminals for the *antenna*, not for the *coils*," the claimed "terminals" must be available for connection to circuitry external to the antenna. *Id.* at 47. NuCurrent further alleges that the Board "implicitly construed the term more broadly than its ordinary meaning, concluding that an interior connection point of a coil that is not available for circuitry external to the antenna can qualify as a terminal." *Id.* at 39. Under its proffered construction, NuCurrent contends that Riehl "discloses only two terminals, but the challenged claims require three," and thus the Board's obviousness determination "cannot stand." *Id.* In response, Samsung asserts that "the Board never construed the term," Appellee's Br. 41, and that the Board "found the prior art (Riehl) disclosed the claimed terminals even under NuCurrent's interpretation of that term," *id.* at 40.

We affirm the Board's conclusion on obviousness for two reasons. First, setting aside Samsung's waiver argument and concerns over whether the Board construed

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