

United States Court of Appeals for the Federal Circuit

2008-1501, -1507

POWER-ONE, INC.,

Plaintiff-Appellee,

v.

ARTESYN TECHNOLOGIES, INC.,

Defendant-Appellant.

Alan D. Smith, Fish & Richardson P.C., of Boston, Massachusetts, argued for plaintiff-appellee. With him on the brief were Steven R. Katz, Whitney A. Fellberg and Thomas A. Brown. Of counsel was Matthew J. Leary.

Robert J. McAughan, Jr., Locke Lord Bissell & Liddell LLP, of Houston, Texas, argued for defendant-appellant. With him on the brief were Jeffrey A. Andrews and Christopher B. Dove.

Appealed from: United States District Court for the Eastern District of Texas

Magistrate Judge John D. Love

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Defendant-Appellant.

Appeals from the United States District Court for the Eastern District of Texas in case No. 2:05-CV-463, Magistrate John D. Love

DECIDED: March 30, 2010

Before MICHEL, Chief Judge, GAJARSA, Circuit Judge, and KENDALL, District Judge.^{*}
KENDALL, District Judge.

Power-One, Inc. (“Power-One”) sued Artesyn Technologies, Inc. (“Artesyn”) for infringement of its U.S. Patents Nos. 7,000,125 (the “125 patent”), 6,936,999 (the “999 patent”), 6,949,916 (the “916 patent”) and 7,049,798 (the “798 patent”), which relate to power supply systems for controlling, programming and monitoring point-of-load

^{*} The Honorable Virginia M. Kendall, District Judge, United States District Court for the Northern District of Illinois, sitting by designation.

regulators (“POL regulators”).¹ After a jury trial, the district court entered a permanent injunction and issued a final judgment and then an amended final judgment, based on the jury’s verdict that Artesyn: 1) directly infringed claims 1, 6, 15-17, 23, and 30 of the ’125 patent, and 2) failed to prove that any of the asserted claims of the ’125 patent were invalid.² Artesyn appeals, asserting that the district court’s claim construction of the term “POL regulator” was inadequate to fully describe the scope of the claims and that the district court erred in denying its motion for judgment as a matter of law (“JMOL”) that the ’125 patent was invalid as obvious. Because we find no error regarding any of the issues presented on appeal, we affirm.

I. BACKGROUND

Power-One sells power supply systems that use regulators to supply power to components and devices in an electronic system. A regulator is a power supply that receives input power at one level and provides regulated output power at a different level. The devices being powered by a regulator are referred to as “loads.”

In a distributed power system, which employs multiple regulators, an initial controller, known as a “bus,” is used to communicate information. The bus provides a common output voltage or current to the various regulators of the system, which in turn provide their own specified voltage or current to downstream components. The bus also acts to program, control and monitor the regulators.

In general, there are two types of power system buses: serial and parallel. A serial bus sends information to the regulators along a single communication pathway,

¹ Power-One’s claims regarding the ’916 and ’798 patents were dismissed from the proceedings prior to trial.

² The jury found that Power-One failed to prove that Artesyn infringed any claim of the ’999 patent.

from one item to another. A parallel bus, by contrast, utilizes multiple communication paths, sending out parallel information streams.

Three of the asserted claims at issue in the '125 patent are independent claims. Independent claims 1 and 16 of the '125 patent are directed to a power control system that includes a plurality of POL regulators connected to a "system controller" by a serial data bus. Specifically, Claim 1 states:

A power control system comprising: a plurality of point-of-load (POL) regulators; at least one serial data bus operatively connecting said plurality of POL regulators; and a system controller connected to said at least one serial data bus and adapted to send and receive digital data to and from said plurality of POL regulators; wherein, programming, control and monitoring information is carried on said at least one serial data bus between said system controller and said plurality of POL regulators.

Independent claim 16 recites:

A method of controlling a plurality of point-of-load (POL) regulators, comprising: receiving programming parameters; transmitting serially over a common data bus operably connected to said plurality of POL regulators digital programming data based on said programming parameters; and receiving performance monitoring information from said plurality of POL regulators over said common data bus.

Independent claim 23 is directed to a POL regulator that includes a power conversion circuit, a controller, and a serial bus interface for communicating programming and monitoring information. Claim 23 recites:

A point-of-load regulator comprising: a power conversion circuit adapted to convert an intermediate voltage to an output voltage; a serial data bus interface adapted to communicate programming and monitoring information to and from an external serial data bus connected thereto; and a controller connected to said serial data bus interface and said power conversion circuit, said controller being adapted to determine operating parameters for said power conversion circuit responsive to said programming information and generate said monitoring information responsive to operational characteristics of said power conversion circuit.

The term POL regulator is not defined in the '125 patent and after a Markman hearing was held, the district court rejected Artesyn's argument that the term was indefinite and construed it to mean:

[A] dc/dc switching voltage regulator designed to receive power from a voltage bus on a printed circuit board and adapted to power a portion of the devices on the board and to be placed near the one or more devices being powered as part of a distributed board-level power system.

After a jury found that Artesyn directly infringed claims 1, 6, 15-17, 23 and 30 of the '125 patent and failed to prove that any of the asserted claims were invalid, Artesyn moved for judgment as a matter of law claiming invalidity and non-infringement of the '125 patent. The district court denied the motion. The district court consequently entered a permanent injunction and an amended final judgment that Artesyn now appeals. We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(1) (2006).

II. DISCUSSION

Artesyn raises two primary issues on appeal. First, Artesyn challenges the district court's construction of the claim term "POL regulator," asserting that the district court did not provide an adequately precise construction of the term. Alternatively, Artesyn suggests that the term POL regulator is indefinite. Second, Artesyn challenges the jury's validity finding, urging us to find that the '125 patent was obvious as a matter of law. We address each issue in turn.

A. Claim Construction and Indefiniteness

1. Adequacy of the District Court's Claim Construction

We review claim construction de novo. See Ball Aerosol & Specialty Container, Inc. v. Ltd Brands, Inc., 555 F.3d 984, 989 (Fed. Cir. 2009); Young v. Lumenis, Inc., 492 F.3d 1336, 1344 (Fed. Cir. 2007). When construing claims, the intrinsic evidence is the

primary resource. See Phillips v. AWH Corp., 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc). Claim terms are “generally given their ordinary and customary meaning,” the meaning that the term would have to “a person of ordinary skill in the art . . . at the time of the invention.” Id. at 1312-13 (internal citations omitted). The terms, as construed by the court, must “ensure that the jury fully understands the court’s claim construction rulings and what the patentee covered by the claims.” Sulzer Textil A.G. v. Picanol N.V., 358 F.3d 1356, 1366 (Fed. Cir. 2004).

Artesyn first contends that the district court’s construction of the claim term POL regulator is flawed because it fails to articulate the scope of the asserted claims of the ’125 patent in any meaningfully precise manner. Specifically, it argues that the court’s construction of the terms “adapted” and “near” are facially vague and subjective, such that the construction left the jury free to make its own determination as to the claims’ scope in violation of Markman.

Here, the district court construed the claim term “POL regulator” in a meaningfully precise manner. The court construed “POL regulator” to mean:

[A] dc/dc switching voltage regulator designed to receive power from a voltage bus on a printed circuit board and adapted to power a portion of the devices on the board and to be placed near the one or more devices being powered as part of a distributed board-level power system.

The intrinsic record supports the district court’s construction, and despite Artesyn’s contention, the terms “adapted to” and “near” are not facially vague or subjective. Claims using relative terms such as “near” or “adapted to” are insolubly ambiguous only if they provide no guidance to those skilled in the art as to the scope of that requirement. See Datamize, 417 F.3d at 1347 (the definiteness of a claim’s terms depends on whether those terms can be given a reasonable meaning by a person of

ordinary skill in the art); see, e.g., Young, 492 F.3d at 1346 (“near” not indefinite); Central Admixture Pharm. Servs., Inc. v. Advanced Cardiac Solutions, 482 F.3d 1347, 1356 (Fed. Cir. 2006) (“adapted to” not indefinite); Verve, LLC v. Crane Cams, Inc., 311 F.3d 1116, 1120 (Fed. Cir. 2002) (same). Here, a person of ordinary skill in the field would understand the meaning of “near” and “adapted to” because the environment dictates the necessary preciseness of the terms.

The phrase “[t]o be placed near the one or more devices being powered as part of a distributed board-level power system,” as recited in the court’s construction, implies that the dc/dc switching voltage regulator is to be placed on the printed circuit board—somewhere close to or at the load—the device being powered as part of the distributed board-level power system. Moreover, reference to the ’125 patent’s specification demonstrates that the term “near” means *close to* or *at* the load. As the specification of the ’125 patent states:

[I]t is known to distribute an intermediate bus voltage throughout the electronic system, and include an individual point-of-load (“POL”) regulator, i.e. DC/DC converter, at the point of power consumption within the electronic system.

This language indicates that the POL regulator is to be located just upstream from the load being powered. Likewise, Figure 1 of the ’125 patent illustrates a prior art power system where the POL regulator is located at the point of power consumption, providing a standard for measuring the term “near.” The specification further provides guidance on where it is to be located in relation to the load. The specification recites:

Ideally, the POL regulator would be physically located adjacent to the corresponding electronic circuit so as to minimize the length of the low voltage, high current lines through the electronic system. The intermediate bus voltage can be delivered to the multiple POL regulators using low current lines that minimize loss.

This language unambiguously states that the regulator is to be placed *adjacent to* the corresponding load that it is powering so that low voltage/high currents will not be delivered over relatively long distances. The patent's functionality requirement restricts the boundaries of where the regulator can be located in relation to the load it is powering. A skilled artisan in distributed power systems would know where to place the regulator to accomplish that stated objective.

Similarly, the phrase "adapted to power a portion of the devices on the board," when read in conjunction with the intrinsic record, makes clear that a POL regulator is one that is capable of delivering power, at the appropriate intensity, to one or more loads on the circuit board. The specification of the '125 patent states:

[A] POL regulator would be included with each respective electronic circuit to convert the intermediate bus voltage to the level required by the electronic circuit.

This language unambiguously indicates to a skilled artisan that the output power of a POL regulator would be at the level required by, and thus "adapted to," the electronic circuit receiving power from the POL regulator.

The fact that the claim is not defined using a precise numerical measurement does not render it incapable of providing meaningful guidance to the jury because the claim language, when taken in context of the entire patent, provides a sufficiently reasonable meaning to one skilled in the art of distributed power systems. Therefore, we find that the district court's claim construction of the term POL regulator was adequate to fully describe the scope of the claims.

2. Definiteness of the term “POL regulator”

Artesyn asserts, as an alternative basis for reversing the district court’s judgment, that the district court committed error in finding the term “POL regulator” not indefinite. A determination of indefiniteness is reviewed de novo. See Young, 492 F.3d at 1344. Pursuant to § 112 of the Patent Act, to be sufficiently definite, a patent specification must “conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.” 35 U.S.C. § 112, ¶ 2. To comport with § 112’s definiteness requirement, the boundaries of the claim, as construed by the court, must be discernible to a skilled artisan based on the language of the claim, the specification, and the prosecution history, as well as her knowledge of the relevant field of art. See Halliburton Energy Servs., Inc. v. M-1 LLC, 514 F.3d 1244, 1249-51 (Fed. Cir. 2008). When a claim is “not amenable to construction or [is] insolubly ambiguous” it is indefinite. Datamize LLC v. Plumtree Software, Inc., 417 F.3d 1342, 1347 (Fed. Cir. 2005). However, a claim is not indefinite merely because it poses a difficult issue of claim construction. Exxon Research & Eng’g Co. v. United States, 265 F.3d 1371, 1375 (Fed. Cir. 2001). Rather, “if the meaning of the claim is discernible, even though the task may be formidable and the conclusions may be one over which reasonable persons will disagree, we have held the claim sufficiently clear to avoid invalidity on indefiniteness grounds.” Id. at 1373.

Here, the term “POL regulator” is not indefinite. The intrinsic evidence of the ’125 patent supports that POL regulators are well known devices whose locations and functions relative to other components in the power system are understood by those of ordinary skill in the art. See, e.g., Verve, 311 F.3d at 1119-20 (recognizing that

guidance as to measurement of a term of degree can come from the intrinsic record or from the knowledge of a person of ordinary skill in the art); Exxon, 265 F.3d at 1379-81 (finding “for a period sufficient” definite because the limitation was expressed in terms that were reasonably precise in light of the subject matter). Because a person having ordinary skill in the art would know where to place the POL regulator and how to use it, we find that the claim term “POL regulator” is not indefinite and does not render the claims of the ’125 patent indefinite.

C. Obviousness

Artesyn also challenges the district court’s denial of its JMOL on validity because the power system described in ’125 patent would have been obvious to one of ordinary skill in the art.

This Court applies the procedural law of the relevant regional circuit when reviewing a district court’s denial of a motion for judgment as a matter of law (“JMOL”). See Ecolab, Inc. v. FMC Corp., 569 F.3d 1335, 1341 (Fed. Cir. 2009) (citing MicroStrategy Inc. v. Bus. Objects, S.A., 429 F.3d 1344, 1348 (Fed. Cir. 2005)). The denial of a motion for JMOL is reviewed “under the law of the regional circuit where the appeal from the district court normally would lie.” Z4 Techs., Inc. v. Microsoft Corp., 507 F.3d 1340, 1346 (Fed. Cir. 2007) (applying Fifth Circuit law). In the Fifth Circuit a district court’s denial of a JMOL motion is reviewed de novo, and the jury’s verdict must be affirmed unless “there is no legally sufficient evidentiary basis for a reasonable jury’ to have found for the nonmovant.” Adams v. Groesbeck Independent School Dist., 475 F.3d 688, 690 (5th Cir. 2007) (quoting Fed. R. Civ. P. 50(a)(1)). Accordingly, the reviewing court must “draw all reasonable inferences and resolve all credibility

determinations in the light most favorable to the nonmoving party.” Int’l Ins. Co. v. RSR Corp., 426 F.3d 281, 296 (5th Cir. 2005).

Title 35, United States Code, Section 103 “forbids issuance of a patent when ‘the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.’” KSR Int’l Co. v. Teleflex Inc., 550 U.S. 398, 405 (2007) (quoting 35 U.S.C. § 103). The determination of obviousness under 35 U.S.C. § 103 is a legal question based on underlying questions of fact. In re Kumar, 418 F.3d 1361, 1365 (Fed. Cir. 2005). We therefore review the ultimate determination of obviousness by a district court de novo and the underlying factual inquiries for clear error. See id.

The underlying factual considerations in an obviousness analysis include: 1) the scope and content of the prior art; 2) the differences between the prior art and the claimed invention; 3) the level of ordinary skill in the art; and 4) any relevant secondary considerations. See Graham v. John Deere Co., 383 U.S. 1, 17-18 (1966); PharamStem Therapeutics, Inc. v. ViaCell, Inc., 491 F.3d 1342, 1359 (Fed. Cir. 2007). Relevant secondary considerations include: commercial success, long-felt but unsolved needs, failure of others, and the presence of a motivation to combine, or avoid combining, prior art teachings. KSR, 550 U.S. at 406, 415-18. Because a patent is presumed to be valid, to prevail on its JMOL Artesyn was required to prove that the ’125 patent was obvious by clear and convincing evidence. See AK Steel Corp. v. Sollac & Ugine, 344 F.3d 1234, 1238-39 (Fed. Cir. 2003).

At trial, Artesyn relied on seven pieces of prior art to support its claim of obviousness: 1) the SCPI Protocol Specification (“SCPI”), 2) the Linear Technology Design Note (“Design Note”), 3) the Melcher G Data Sheet (“Melcher”), 4) the Summit NEBS Article (“Summit”), 5) the ’169 Voegeli Patent (“Voegeli”), 6) ’294 Duffy Patent (“Duffy”), and 7) the Teradyne Prototype (“Teradyne”). The primary evidence presented with respect to the issue of obviousness was the testimony of Artesyn’s and Power-One’s respective experts. The jury heard conflicting testimony on whether the ’125 patent was obvious in light of the prior art. In evaluating the evidence, the jury was free to disbelieve Artesyn’s expert, Mr. Neal Stewart (“Stewart”), who gave testimony that the scope of the prior art was broad and the differences between the prior art and the invention claimed in the ’125 patent were minor, and credit Power-One’s expert, Dr. Mark Ehsani (“Ehsani”), who opined that a person of ordinary skill in the art would not have considered the invention disclosed in the ’125 patent obvious, and who cited significant differences between the prior art and the claimed invention. More specifically, Ehsani opined that no prior art reference, or combination thereof, teaches the use of a serial data bus to exchange bidirectional information between a system controller and a plurality of POL regulators for the flexible sending and receiving of control, programming and monitoring information. In the end, the jury credited Power-One’s expert, Ehsani.

Artesyn’s argument that the ’125 patent is obvious because all of the elements that comprise the invention were known in the prior art also fails because “a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements is, independently, known in the prior art.” KSR, 550 U.S. at 418. As the

district court pointed out, Stewart's testimony did not provide a plausible rationale as to why the prior art references would have worked together to render the claims of the '125 patent obvious.

Power-One also provided evidence of secondary considerations of nonobviousness, which supported the jury's conclusion that Power-One's '125 patent was not invalid. In response to Power-One's invention, Artesyn launched its own infringing product, the DPL20C, which it touted as "enab[ling] the customer to communicate, configure and monitor a variety of different converter functions which in the past was just not an option or required separate and specialized silicon for this to be achieved." Artesyn's position that Power-One's invention was obvious is inconsistent with its position that its own infringing product was an advancement in the industry. Moreover, Artesyn's contemporaneous reaction to Power-One's invention, and the industry's reaction, demonstrate the unobviousness of the invention disclosed in the '125 patent. Power-One presented evidence of praise in the industry that specifically related to features of the patented invention, linking that industry praise with the patented invention. See Allen Archery, Inc. v. Browning Mfg. Co., 819 F.2d 1087, 1092 (Fed. Cir. 1987) (praise in the industry for a patented invention, and specifically praise from a competitor tends to "indicat[e] that the invention was not obvious"); see also Demaco Corp. v. F. Von Langsdorff Licensing Ltd., 851 F.2d 1387, 1392 (Fed. Cir. 1988). Lastly, Power-One presented sufficient evidence for a jury to conclude that Artesyn copied its patented invention, a factor to be considered as a secondary consideration when determining obviousness. See, e.g., Allen Archery, 819 F.2d at 1092.

In short, sufficient evidence supports the court's finding that the scope of the prior art is limited, that there are significant differences between the invention disclosed in '125 patent and the prior art, and that the relevant secondary considerations support a finding of nonobviousness. Because the district court correctly determined that a reasonable jury could find that the '125 patent was not obvious in light of the prior art, we affirm the district court's denial of Artesyn's JMOL on validity.

III. CONCLUSION

For the aforementioned reasons, we affirm.