United States Court of Appeals for the Federal Circuit

04-1291

ON-LINE TECHNOLOGIES, INC.,

Plaintiff-Appellant,

v.

BODENSEEWERK PERKIN-ELMER GMBH,
PERKIN-ELMER CORP., PERKIN-ELMER INC.,
SICK UPA GMBH, and SICK, A.G.,

Defendants-Appellees.

Gabriel Berg, Berg & Androphy, of New York, New York, argued for plaintiff-appellant.

Edward T. Colbert, Kenyon & Kenyon, of Washington, DC, argued for defendants-appellees. With him on the brief was C. Kyle Musgrove. Of counsel on the brief were Francis H. Morrison III and Jonathan B. Tropp, Day, Berry & Howard LLP, of Hartford, Connecticut.

Appealed from: United States District Court for the District of Connecticut

Judge Janet Bond Arterton

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DECIDED: October 13, 2004

Before MICHEL, Circuit Judge, ARCHER, Senior Circuit Judge, and BRYSON, Circuit Judge.

BRYSON, Circuit Judge.

The dispute in this case involves a device known as a long-path gas cell, which is used in an infrared spectrometer to determine the composition of gases such as emissions from industrial plants. The spectrometer captures the gas to be tested and directs a beam of infrared light through the chamber containing the gas. After the light has passed through the chamber, a detector measures the absorption of the light, from which the properties of the gas can be determined.

It has long been understood in the art that lengthening the light path in the gas cell chamber can result in a more accurate absorption reading. One problem

encountered in long-path gas cells, however, was that over the long path created by multiple reflections of the light beam within the chamber, the quality of the beam would become degraded, primarily because of astigmatism induced by the mirrors used in the system. Astigmatism is an optical aberration created when an optical element or system has a different focal length in each of two orthogonal planes. K.D. Moeller, Optics 448 (1988); H.P. Brueggemann, Conic Mirrors 15 (1968).

In 1995, appellant On-Line Technologies, Inc., obtained a patent, U.S. Patent No. 5,440,143 ("the '143 patent"), on a method for increasing the length of the light path in a gas cell while correcting for astigmatism and thereby reducing the diffusion of the beam of light. On-Line subsequently brought an action in the United States District Court for the District of Connecticut against a group of related parties, Bodenseewerk Perkin-Elmer GmbH; Perkin-Elmer Corp.; Perkin-Elmer Inc.; Sick UPA GmbH; and Sick, A.G. (collectively, "Perkin-Elmer"). On-Line Techs., Inc. v. Bodenseewerk Perkin-Elmer GmbH, No. 3:99CV2146 (D. Conn. filed Nov. 3, 1999).

In its complaint, On-Line alleged that Perkin-Elmer had made, used, and sold a device that infringed the '143 patent. In addition, On-Line asserted several state law claims, including misappropriation of trade secrets, violation of the state law of unfair competition, breach of contract, and fraud. In support of the state law claims, On-Line alleged that, pursuant to a nondisclosure agreement, it had revealed its gas cell design to Perkin-Elmer scientists in anticipation of a possible business arrangement between the companies relating to On-Line's device. Rather than pursuing a joint enterprise, however, Perkin-Elmer allegedly copied what it had learned from On-Line and incorporated the disclosed technology into its commercial product, thus breaching the

nondisclosure agreement and violating the state law prohibitions against unfair competition, theft of trade secrets, and fraud.

After discovery, the district court disposed of the patent infringement claim by granting summary judgment of noninfringement. The court also granted summary judgment in favor of Perkin-Elmer on all of On-Line's state law claims, finding that On-Line had failed to show that there was a disputed issue of material fact with respect to any of those claims. Finally, the court dismissed one of the defendants, Sick, A.G., for lack of personal jurisdiction. On-Line appeals all three aspects of the judgment.

I

The district court's grant of summary judgment of noninfringement as to claim 1 of the '143 patent was premised on the court's claim construction. On-Line contends that the district court erred in construing the claim and therefore erred in entering summary judgment.

Claim 1 of the '143 patent recites as follows (emphasis added):

> A folded-path radiation absorption gas cell comprising: an enclosure having first and second ends, and defining a substantially closed chamber therewithin; spaced input radiation and output radiation windows formed through said first end of said enclosure and aligned on a first axis; a concave reflective field surface extending at least partially between said windows at said first end of said enclosure; a pair of substantially spherical, concave reflective objective surfaces at said second end of said enclosure disposed in confronting relationship to said field surface, said objective surfaces being aligned side-by-side on an axis

parallel to said first axis and in optical registry with said windows, at least one of said objective surfaces having a cylindrical component added thereto to increase coincidence of focii in two orthogonal planes, thereby to maximize the energy throughput characteristic of said cell; and means for the introduction and withdrawal of gas into and from said chamber of said enclosure.

The invention to which claim 1 is directed is an improvement on a type of gas cell known as a "White cell." A White cell uses several mirrors that are aligned to make the light follow a long path as it passes through the test chamber. In the invention, two mirrors are placed side by side at the opposite end of the main chamber from a third mirror. A beam of light enters the chamber and is repeatedly reflected off the three mirrors until it reaches an exit point. Because the mirrors reflect the light beam back and forth across the chamber multiple times, the path of the beam is much longer than the distance from one end of the chamber to the other.

The '143 patent sought to address the problem of astigmatic diffusion of the light beam passing through the cell. The solution proposed by the '143 patent was to shape the secondary mirrors in a manner that would counteract the astigmatism induced by reflections from the spherical mirrors used in White cells and thus keep the beam of light focused during its passage through the cell. '143 patent, col. 4, ll. 52-62. To achieve that purpose, each claim of the '143 patent required the mirrors to have "substantially spherical, concave reflective objective surfaces . . . at least one of said objective surfaces having a cylindrical component added thereto to increase

coincidence of focii in two orthogonal planes . . . ." Id., col. 5, ll. 44-52; col. 6, ll. 14-22, 40-48.

On-Line asserted that Perkin-Elmer's commercial long-path gas cells infringed claim 1 of the '143 patent. In particular, On-Line contended that Perkin-Elmer's cells used objective mirrors of the sort recited in the claim to correct for astigmatism. In the district court, Perkin-Elmer did not dispute that its accused gas cells used objective mirrors shaped to correct for astigmatism. Perkin-Elmer argued, however, that its objective mirrors had toroidal surfaces, not "substantially spherical" surfaces "having a cylindrical component added thereto," as required by claim 1 of the '143 patent. For that reason, Perkin-Elmer argued, its gas cells were not within the scope of the patent, either literally or under the doctrine of equivalents. In essence, Perkin-Elmer's argument was that a toroidal surface is different from a substantially spherical surface with a cylindrical component added to it. Because On-Line not only did not claim toroidal mirror surfaces but specifically omitted them from its claims, Perkin-Elmer contended that On-Line had dedicated surfaces of that shape to the public. The district court agreed with Perkin-Elmer and held that Perkin-Elmer's toroidal surface was not covered by the '143 patent.

In explaining its claim construction ruling, the district court noted that the specification described the contour of the spherical objective mirrors as "approach[ing] toroidal." '143 patent, col. 4, ll. 8-12. The court stated that "[b]ecause mirrors with a contour which only 'approaches toroidal' cannot be said to be actual toroidal mirrors, toroidal objective mirrors are not spherical objective mirrors with cylindrical corrections." In support of that conclusion, the court cited extrinsic evidence, including testimony from

the inventors, which the court characterized as establishing that "spherical objective mirrors with cylindrical corrections are not the same as toroidal objective mirrors." Because the court concluded that the claim language excluded toroidal surfaces, the court held that Perkin-Elmer's gas cells did not literally infringe claim 1 of the '143 patent. Moreover, because the court concluded that toroidal surfaces were disclosed but not claimed in the '143 patent, the court invoked the principle that a patentee's disclosure of unclaimed subject matter bars application of the doctrine of equivalents to that subject matter and held that On-Line could not rely on the doctrine of equivalents to reach toroidal mirrors such as Perkin-Elmer's.

On appeal, On-Line contends that the district court erred in ruling that objective mirrors having a toroidal surface are not within the scope of claim 1 of the '143 patent. We agree with On-Line that, properly construed, the reference to a "substantially spherical, concave reflective surface . . . having a cylindrical component added thereto to increase coincidence of focii in two orthogonal planes" defines a set of curved surfaces that includes a toroidal surface. We reach that conclusion because the specification makes clear that the claim language referring to spherical surfaces with cylindrical components includes toroidal surfaces.

A toroidal (or toric) surface is defined as a surface that is "generated if an arc is rotated about an axis which lies in the same plane as the arc, but which does not pass through its centre of curvature." M. Jolie, The Principles of Ophthalmic Lenses 31 (3d ed. 1977). The classic example of a toroid is the shape generated when a circle is rotated about a line that does not intersect the circle, which describes a torus, a figure

resembling a doughnut or tire. A toroidal surface is the shape of a segment of the surface of a toroid. Id.

Although the parties agree that the term "toroidal" has a well-understood definition, neither party suggests that the term "substantially spherical, concave reflective surface . . . having a cylindrical component added thereto," used in the claims of the '143 patent, has a precise and well-established meaning in the art. Rather, the evidence before the trial court indicates that the reference to spheres and cylinders is borrowed from thin lens theory, and that a lens characterized as spherical with a cylindrical component is one with an optical function achieved by "stacking" spherical and cylindrical lenses. The evidence shows that the same nomenclature is sometimes used, albeit with some lack of precision, to refer to reflective surfaces having similar optical properties to such stacked lenses, even though reflective surfaces cannot be stacked in the same manner as lenses.

Because the phrase "substantially spherical . . . having a cylindrical component added thereto" has no precise and generally understood meaning in the art as applied to reflective surfaces, we look to the intrinsic evidence, in this case the specification, for guidance as to the meaning of that language as used in the patent. See Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1324-25 (Fed. Cir. 2002) ("The words used in the claim are interpreted in light of the intrinsic evidence of record . . . . The intrinsic evidence may provide context and clarification about the meaning of claim terms. 'Such intrinsic evidence is the most significant source of the legally operative meaning of disputed claim language.'" (citations omitted)); Genentech, Inc. v. Wellcome Found. Ltd., 29 F.3d 1559, 1563 (Fed. Cir. 1994) ("Since a definition of [the critical claim]

phrase cannot be extracted from the claims themselves, we look to the specification for guidance."); see also United States v. Adams, 383 U.S. 39, 49 (1966) ("[C]laims are to be construed in the light of the specifications and both are to be read with a view to ascertaining the invention.").

Although in this case, as in others, "the guidance [in the specification] is not provided in explicit definitional format," Irdeto Access, Inc. v. Echostar Satellite Corp., No. 04-1154, slip op. at 8 (Fed. Cir. Sept. 14, 2004), the specification of the '143 patent nonetheless demonstrates that the claim language encompasses toroidal surfaces. First, the specification refers to the curved surfaces in the preferred embodiment of the invention as toroidal surfaces ("the toroids of the surfaces 62, 64," '143 patent, col. 4, line 16), and in doing so it describes those surfaces by using the same language that is used in claim 1 ("generally spherical reflective surfaces," each of which "has a cylindrical component superimposed thereupon," id., col. 4, ll. 7-10). Accordingly, the specification makes it clear that, for purposes of the '143 patent, a toroidal surface is a substantially spherical reflective surface that has a cylindrical component superimposed thereupon.

Second, even if the specification were less explicit in equating the term "toroid" with a generally spherical surface having a cylindrical component added thereto, the reference to the preferred embodiment as having mirrors with toroidal surfaces would give rise to a very strong inference that the claim should be construed to include such surfaces. As this court has explained before, "a claim interpretation that excludes a preferred embodiment from the scope of the claim 'is rarely, if ever, correct.'" Globetrotter Software, Inc. v. Elan Computer Group, Inc., 362 F.3d 1367, 1381 (Fed.

Cir. 2004), quoting Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583 (Fed. Cir. 1996); see also Int'l Rectifier Corp. v. IXYS Corp., 361 F.3d 1363, 1371 (Fed. Cir. 2004); Modine Mfg. Co. v. U.S. Int'l Trade Comm'n, 75 F.3d 1545, 1550 (Fed. Cir. 1990).

The district court interpreted the reference in the specification to a "contour that approaches toroidal," '143 patent, col. 4, line 12, as indicating that the recited surface could include a surface that approximates a toroidal shape, but could not include the toroidal shape itself. We disagree with that interpretation. From the description of the mirror surfaces of the preferred embodiment as "toroids" four lines later in the specification, we think it clear that the words "approaching toroidal" were not meant to exclude curves designed to be toroidal in shape, but simply to indicate that the surfaces recited in the invention were intended to include all curves that closely approximate toroidal, including a toroidal surface itself. Indeed, as a matter of manufacturing tolerances, it is impossible to make a real-world device with a reflecting surface that is perfectly toroidal, just as it is impossible to make a reflecting surface that is a perfect spheroid or a perfect paraboloid. For that reason, even mirrors that are designed to be toroidal, such as the mirrors in Perkin-Elmer's device, will necessarily merely "approach" the ideal toroidal shape, although they may come very close. Accordingly, we do not agree with the district court that the reference in the specification to a surface that "approaches toroidal" was meant to exclude a device having a surface that is characterized in the art of optical engineering as "toroidal."

Finally, the patent describes the effect of adding a cylindrical component to a generally spherical mirror as being "to reduce the effective radius of curvature in one

plane, thus enabling light incident on the reflective surface to better approach the focus in the orthogonal plane," '143 patent, col. 4, ll. 60-62, and "to increase coincidence of focii in two orthogonal planes," id., col. 5, ll. 51-52. A toroidal surface "has two principal radii of curvature corresponding to its two principal curves," M. Jolie, supra, at 31; see also Jurgen R. Meyer-Arendt, Introduction to Classical & Modern Optics 120 (3d ed. 1989) ("A toric surface has two radii of curvature (different in the two principal meridians)"); Daniel Malacara, Optical Shop Testing 754 (2d ed. 1992). That characteristic makes toroidal surfaces useful in counteracting astigmatism. See Eugene Hecht, Optics 211-12 (3d ed. 1998). Thus, while the claim language in the '143 patent does not either expressly include a toroidal surface or exclude other similar surfaces, the characteristics and function of the surface described in the specification and the claims are consistent with the characteristics and function of a toroidal surface.

The district court relied on extrinsic evidence that the court interpreted as supporting its claim construction. Extrinsic evidence, however, cannot be used to alter a claim construction dictated by a proper analysis of the intrinsic evidence. See Intel Corp. v. VIA Techs., Inc., 319 F.3d 1357, 1367 (Fed. Cir. 2003) ("When an analysis of intrinsic evidence resolves any ambiguity in a disputed claim term, it is improper to rely on extrinsic evidence to contradict the meaning so ascertained."); Frank's Casing Crew & Rental Tools, Inc. v. PMR Techs., Ltd., 292 F.3d 1363, 1374 (Fed. Cir. 2002); Bell & Howell Document Mgmt. Prods. Co. v. Altek Sys., 132 F.3d 701, 706 (Fed. Cir. 1997). In any event, we do not agree with the district court's analysis of the extrinsic evidence.

Although the evidence showed, and On-Line's witnesses acknowledged, that the mathematical description of a toroid differs from that of a spherocylinder, On-Line

offered evidence that a person of skill in fabricating optics would understand the expression "sphere with cylindrical correction" or a sphere "having a cylindrical component" to refer not to a mathematical concept but to the type of optical correction obtained by stacking thin lenses, one having a spherically curved surface and another having a cylindrically curved surface. According to On-Line's expert, a person of ordinary skill in the art would understand the term "sphere with cylindrical correction," as a way of describing the curved surfaces used in On-Line and Perkin-Elmer's commercial products, i.e., toroidal surfaces. The evidence in the summary judgment record therefore provides further support for On-Line's contention that the surface of the objective mirrors recited in claim 1 of the '143 patent includes toroidal surfaces, as that term is understood by persons of skill in the pertinent art, as opposed to the manner in which it is used by mathematicians.

To be sure, On-Line's inventors acknowledged that as a mathematical concept a toroidal surface is not the same thing as a spherical surface with a cylindrical component added to it. That is not to say, however, that the inventors regarded toroidal surfaces as falling outside the broader claim language, which referred to "substantially spherical" surfaces "having a cylindrical component added thereto." As On-Line's expert explained, "the sphere/cylinder convention does not specify the exact mathematical surface . . . . A person of ordinary skill in the art would understand the term 'sphere with cylindrical correction' as a terse and natural way to describe the modestly curved surfaces of the objective mirrors in On-Line's or Perkin-Elmer's gas cell [both of which are toroidal]." Moreover, while acknowledging that the mathematical definition of a toroid differs from that of a spheric cylinder, co-inventor Robert Carangelo

testified that the claim language "substantially spherical . . . having a cylindrical component added" includes a toroidal surface. The other co-inventor, David Wright, testified to similar effect, stating that the claim language was intended to cover a range of conic sections, including ellipsoids and toroids, all of which would have the same shape near the axis "to within the order of machining tolerance." Finally, even the technical article on which Perkin-Elmer relies to demonstrate that there is a mathematical distinction between toroidal and spherocylindrical surfaces points out that the distinction is extremely subtle for most applications and that toroidal surfaces "are sometimes also [referred to] as spherocylindrical surfaces." Carmen Menchaca & Daniel Malacara, Toroidal and Spherocylindrical Surfaces, 25 Applied Optics 3008 (1986).

Because of the lack of precision in the language used to define the claimed surfaces of the objective mirrors, this case was made more difficult than it needed to be, and the district court was required to invest considerable effort in trying to ascertain the meaning of the critical claim language. While the district court conducted a careful analysis of the claim language in light of the specification and the extrinsic evidence, we are nonetheless persuaded, particularly in light of the specification, that the district court's claim construction was too restrictive and that a surface designed to be toroidal is within the scope of claim 1 of the '143 patent. Accordingly, because the summary judgment of noninfringement was based on an erroneous claim construction, we vacate the judgment of noninfringement and remand the case for further proceedings on the remaining issues pertinent to On-Line's claim of infringement.

II

Invoking the district court's supplemental jurisdiction, On-Line raised a number of state law claims, including claims that Perkin-Elmer had misappropriated five trade secrets relating to On-Line's gas cell, in violation of the Connecticut Uniform Trade Secrets Act, Conn. Gen. Stat. § 35-50 et seq. ("CUTSA"). The district court concluded that no reasonable jury could find that Perkin-Elmer had misappropriated any of On-Line's trade secrets. On-Line challenges that ruling with respect to two of the trade secrets that it alleges Perkin-Elmer misappropriated: the long-path gas cell and the Norton igniter source.

A. The Long-Path Gas Cell Trade Secret Claim

In the district court, On-Line alleged that Perkin-Elmer misappropriated confidential information relating to the design of On-Line's long-path gas cell. The district court ruled that On-Line failed to prove actionable misappropriation because the information at issue was disclosed in the '143 patent and because On-Line failed to point to any evidence that Perkin-Elmer had improperly used any information relating to the gas cell prior to the issuance of the patent. Based on the summary judgment record, the district court concluded that undisputed evidence showed that Perkin-Elmer did not begin to incorporate the features of On-Line's gas cell into its own product until 1996, after the issuance of the '143 patent. Although On-Line referred to evidence regarding Perkin-Elmer's conduct before the issuance of the '143 patent, the district court held that none of that evidence was probative of misappropriation because the conduct in question all constituted legitimate evaluation of On-Line's product pursuant to the nondisclosure agreement entered into by On-Line and Perkin-Elmer in 1994. As to

On-Line's claim that not all of the secrets relating to its gas cell were disclosed in the '143 patent, the court found that claim to be unsupported by any evidence.

After a patent has issued, the information contained within it is ordinarily regarded as public and not subject to protection as a trade secret. See Restatement (Third) of Unfair Competition § 39 cmt. f (1995) ("Information that is generally known or readily ascertainable through proper means . . . by others to whom it has potential economic value is not protectable as a trade secret. Thus, information that is disclosed in a patent or contained in published materials reasonably accessible to competitors does not qualify for protection [as a trade secret]."); Conmar Prods. Corp. v. Universal Slide Fastener Co., 172 F.2d 150, 155-56 (2d Cir. 1949) (L. Hand). Moreover, the nondisclosure agreement in this case specifically provided that the obligation of confidentiality created by the agreement "will not apply to any information . . . which becomes publicly available other than by breach of this agreement." Consequently, On-Line cannot claim that Perkin-Elmer's activities following the issuance of the '143 patent constituted misappropriation of confidential information unless the activities related to information not disclosed in the patent.

In the district court, On-Line claimed that Perkins-Elmer had misappropriated information relating to the design of the long-path gas cell and had used it to build its own long-path gas cell prior to the issuance of the '143 patent. The district court, however, concluded that the evidence to which On-Line pointed did not create a genuine issue of material fact on that issue, and we agree. As characterized by the district court, the evidence showed that Perkin-Elmer took various steps to evaluate the On-Line technology that it was considering buying, but did not show that Perkin-Elmer

began building its own gas cell before 1996. Although On-Line asserts that the evidence of Perkin-Elmer's course of conduct with respect to On-Line's product shows that it made use of On-Line's gas cell trade secret before the issuance of the '143 patent, On-Line's general characterizations do not satisfy the requirement that it point to specific evidence sufficient to create a disputed issue of material fact. See Celotex Corp. v. Catrett, 477 U.S. 317, 324 (1986) (non-movant in summary judgment proceedings must "designate specific facts showing that there is a genuine issue for trial"); Crown Operations Int'l, Ltd. v. Solutia Inc., 289 F.3d 1367, 1377 (Fed. Cir. 2002) ("non-moving party must affirmatively demonstrate by specific factual allegations that a genuine issue of material fact exists for trial"); S. Bravo Sys., Inc. v. Containment Techs. Corp., 96 F.3d 1372, 1376 (Fed. Cir. 1996) (unsupported assertions do not satisfy requirement of designating specific evidence creating a genuine issue of material fact).

We also reject On-Line's argument that Perkin-Elmer's acts of copying and testing On-Line's gas cell during the period covered by the nondisclosure agreement were not authorized by the agreement and therefore constituted misappropriation. As the district court noted, On-Line did not present any evidence that Perkin-Elmer began to develop its own cell during the period covered by the agreement or otherwise engaged in conduct prohibited by the nondisclosure agreement. Instead, the evidence relating to Perkin-Elmer's conduct with respect to the disclosed technology shows merely that Perkin-Elmer tested and evaluated that technology, which was conduct contemplated by the nondisclosure agreement. Moreover, Robert Hoult, a Perkin-Elmer scientist who visited On-Line's facility following the execution of the nondisclosure agreement, submitted an affidavit in which he averred that he had learned nothing

useful about On-Line's gas cell that was not already evident from On-Line's nonconfidential marketing brochure. On-Line did not offer evidence to contradict Dr. Hoult's representation. Because On-Line failed to demonstrate a disputed issue of material fact with respect to the long-path gas cell trade secret claim, we affirm the district court's grant of summary judgment on that issue.

B. The Norton Igniter Source Trade Secret Claim

On-Line's second trade secret claim is that Perkin-Elmer misappropriated the infrared light source and assembly used in the On-Line spectrometer. On-Line uses a device known as the Norton 301-T igniter to produce the infrared light beam that is directed into its testing chamber. In the district court, On-Line argued that Perkin-Elmer learned of the Norton 301-T igniter during its visits to On-Line's facility and used that information to produce its own gas cell, which uses the same igniter as a light source. The district court concluded that the use of the Norton 301-T igniter as the light source was not a trade secret because that use was publicly disclosed in a third party's patent, U.S. Patent No. 5,291,022 ("the '022 patent"), which issued in March of 1994.

On appeal, On-Line argues that although the use of the Norton 301-T igniter as a high-intensity infrared radiation source was known, its use for that purpose in connection with a long-path gas cell was not. It was not the Norton 301-T igniter itself that was the protected trade secret, On-Line argues, but rather the specific purpose to which it was put in On-Line's product. In support of that argument, On-Line points to a report by On-Line's expert, Dr. Warren Vidrine, which described the difference between the use of the Norton 301-T igniter in the '022 patent and its use in the On-Line and Perkin-Elmer devices. Specifically, On-Line points to Dr. Vidrine's statement that On-

Line and Perkin-Elmer both "use metal mirrors to reflect radiation back to the source element to reduce the amount of heat which would otherwise be wasted. The '022 patent source design does not include any reflective mirrors."

Dr. Vidrine's report does not suggest that the use of the Norton 301-T igniter as an infrared radiation source in a long-path gas cell constituted a trade secret. Instead, his report is directed to the overall design of the source assembly. Moreover, the disclosure in the '022 patent of the uses to which a source such as the Norton 301-T ceramic igniter source could be put was very broad. The '022 patent addresses "the field of light sources, particularly those emitting in the infrared wavelengths, and more particularly to infrared sources used in analytical instruments such as infrared spectrometers." '022 patent, col. 1, ll. 5-9. It also explicitly refers to the Norton 301-T igniter as a suitable light source. Id., col. 6, ll. 50-53. Moreover, Dr. Hoult stated that Perkin-Elmer had determined independently that others were using Norton igniters and that by the time of his visit to On-Line's facility Perkin-Elmer's biggest competitor had been using Norton igniters in infrared spectrometers for approximately two years. In light of the breadth of the disclosure in the '022 patent, the evidence that Perkin-Elmer had learned of the Norton igniter independently, and in the absence of any contrary evidence from On-Line, we agree with the district court that no reasonable jury could conclude that the use of a Norton 301-T igniter in an infrared spectrometer constituted a protectable trade secret that Perkin-Elmer misappropriated from On-Line.

On-Line also argued before the district court that Perkin-Elmer misappropriated an On-Line trade secret when it incorporated into its source assembly two reflective surfaces similar to those that On-Line had developed to enhance and collimate the

infrared light beam directed into the testing chamber. In support of that argument, On-Line offered Dr. Vidrine's report, which asserted that the igniter source assembly in Perkin-Elmer's devices, including a reflective cavity and a field mirror, was similar to the source assembly in On-Line's system.

The district court held that On-Line's evidence with regard to the source assembly claim did not raise a disputed issue of material fact, and we agree. Although Dr. Vidrine asserted that, in his opinion, Perkin-Elmer "commenced to copy, adapt and prepare to take advantage of" features of the On-Line source assembly, including the retroreflective cavity, he did not cite evidence to support that assertion. Instead, Dr. Vidrine's assertion was based on his comparison of the optical elements in the source assembly of the On-Line and Perkin-Elmer instruments. With respect to the retroreflector, Dr. Vidrine stated that one of Perkin-Elmer's two products used a "very similar retroreflector" having a "similarly shaped reflective cavity," and that the retroreflector in the other Perkin-Elmer product, although "not a simple copy" of On-Line's design, "produced a functionally similar result." Dr. Vidrine inferred copying based on the fact that Perkin-Elmer "rapidly adopted" a reflective cavity design. With respect to the field mirror, Dr. Vidrine did not claim that Perkin-Elmer's designs were identical to On-Line's design, but asserted that Perkin-Elmer's designs, like On-Line's, were "good optical engineering solutions" for matching a small hot area with the desired beam characteristics of the respective instruments.

In support of its summary judgment motion, Perkin-Elmer offered affidavits from Dr. Hoult, in which he asserted that Perkin-Elmer did not make use of anything he learned about On-Line's source assembly as a result of his visit to On-Line's facility. In

particular, he stated that the optics in the source assembly of the Perkin-Elmer system were "what I would describe as text-book," that the combination of mirrors used in Perkin-Elmer's devices had been developed several years before his contact with On-Line and had first been used in Perkin-Elmer infrared spectrometers in 1989, that the arrangement of mirrors in the various source assemblies is in essence the same as the arrangement of mirrors in an automobile headlight, and that he did not learn from his visit to On-Line's facility that On-Line used a retroreflector in its source assembly.

In rebuttal, On-Line relied principally on a contemporaneous report by Dr. Hoult regarding his trip to On-Line's facility. On-Line argued that the Hoult trip report demonstrated that Dr. Hoult saw On-Line's source assembly during his visit. The report described the source as follows:

> Norton gas-igniter, silicon carbide hairpin mounted on a cylinder with easy push-fit access from the front top. Source hangs down so that debris falls harmlessly away. Source collimation appeared to be an off-axis parabola machined directly on the end of an aluminum cylinder. No firm details of lifetime for source.

That discussion of the source housing (a cylinder with easy push-fit access from the front top) could be interpreted to refer to the source assembly at issue in this case. A reasonable jury could conclude that the "off-axis parabola machined directly on the end of an aluminum cylinder" describes a retroreflective cavity designed to focus the radiation emitted by the Norton igniter, especially given that its purpose is for "[s]ource collimation."

Even accepting the inference from the trip report that Dr. Hoult viewed On-Line's source assembly, On-Line's evidence is insufficient to avoid summary judgment because On-Line failed to address the assertions in Dr. Hoult's affidavit that the mirror array in the source assembly was "text-book" and that Perkin-Elmer had used a similar combination of mirrors in a like instrument years earlier. Although On-Line argues that the earlier device did not use a ceramic igniter as the energy source, there was no evidence before the district court that the difference in the energy source rendered On-Line's source assembly sufficiently distinct to constitute a protectable trade secret. Moreover, nothing in the Hoult trip report suggests that the structure of the source assembly was unfamiliar to Dr. Hoult; in fact, the abbreviated description of the source assembly in the trip report suggests the contrary. In any event, the mere description of the source assembly in the Hoult trip report is insufficient to overcome the evidence from Dr. Hoult that the design of source assemblies of the sort used by On-Line was already familiar to Perkin-Elmer and that the design of On-Line's source assembly was not a trade secret that Perkin-Elmer misappropriated as a result of the visit to On-Line's facility. As to that issue, On-Line is essentially limited to Dr. Vidrine's conclusory assertion that Perkin-Elmer misappropriated On-Line's design, and such conclusory assertions by expert witnesses are not sufficient to avoid summary judgment. See Schwing GMBH v. Putzmeister Aktiengesellschaft, 305 F.3d 1318, 1326 (Fed. Cir. 2002); Applied Cos. v. United States, 144 F.3d 1470, 1475 (Fed. Cir. 1998); Arthur A. Collins, Inc. v. N. Telecom Ltd., 216 F.3d 1042, 1046-48 (Fed. Cir. 2000). We therefore uphold the district court's grant of summary judgment as to the source assembly.

III

In addition to the trade secret claims, On-Line raised state law claims of fraud, breach of contract, and unfair trade practices. The district court granted summary judgment for Perkin-Elmer as to each of those claims. On-Line appeals as to each.

A. The Fraud Claim

The district court rejected On-Line's fraud claim on the ground that it fell within the scope of CUTSA and was therefore preempted under CUTSA's preemption provision, Conn. Gen. Stat. § 35-57(a). On-Line argues that its claim is not preempted because the facts on which its fraud claim is based differ from those that support its misappropriation claim. On-Line contends that its fraud claim is based on the proposed business transaction being negotiated by the parties, rather than the misappropriation of trade secrets. The district court concluded otherwise, and we agree.

Section 35-57(a) of the Connecticut General Statutes states that "[u]nless otherwise agreed by the parties, the provisions of this chapter supersede any conflicting tort, restitutionary, or other law of this state pertaining to civil liability for misappropriation of a trade secret." The preemptive effect of that statute is limited by subsection (b), which states that it does not affect "[c]ontractual or other civil liability or relief that is not based upon misappropriation of a trade secret," among other things. Conn. Gen. Stat. § 35-57(b). On-Line contends that its fraud claims are not based upon the misappropriation of a trade secret and thus they are not preempted under section 35-57.

The district court concluded that On-Line's fraud claim was based on the theory that Perkin-Elmer's allegedly fraudulent actions allowed it to misappropriate On-Line's

trade secrets. In the fraud portion of its complaint, On-Line alleged that Perkin-Elmer had induced it to disclose a variety of trade secrets. On-Line now contends that the district court misunderstood its fraud allegations; in its brief On-Line contends that its fraud claim "is related to the proposed business transaction being negotiated by the parties," and is not related to the misappropriation of trade secrets. On-Line focuses in particular on Perkin-Elmer's termination of the licensing negotiations in November 1994 and Perkin-Elmer's allegedly false statement that the evaluation of On-Line's technology was unsatisfactory.

The problem with that characterization of the fraud claim is that it is unclear how that statement—even if false—misled On-Line to its prejudice, see Paiva v. Vanech Heights Constr. Co., 271 A.2d 69, 71 (Conn. 1970), except perhaps to promote the furtive misappropriation of On-Line's trade secrets by suggesting that Perkin-Elmer was uninterested in the technology when in fact Perkin-Elmer intended to copy it. If that is the purpose suggested by On-Line's argument regarding the November 1994 false statement, it merely demonstrates that the ultimate injury to which the alleged fraud was directed was the misappropriation of On-Line's trade secrets. In its brief, On-Line has not suggested any other injury that On-Line suffered as a result of Perkin-Elmer's allegedly fraudulent conduct. The district court therefore properly held that the fraud claim was preempted under section 35-57.

B. The Breach of Contract Claim

The district court granted summary judgment with respect to On-Line's breach of contract claim on the ground that the nondisclosure agreement between On-Line and Perkin-Elmer provided no greater protection than that provided by CUTSA. Because

the court concluded that no reasonable jury could find a CUTSA violation, the court held that there could be no breach of contract, either.

On-Line argues that its breach of contract claim is different from its trade secret misappropriation claim. On-Line, however, does not suggest that if it failed to prove misappropriation of trade secrets it would be nonetheless be entitled to relief on a breach of contract theory for violating the covenant not to disclose trade secrets. Instead, in its brief in this court On-Line focuses on the provision of the nondisclosure agreement that imposed on Perkin-Elmer the obligation to return "all copies" of information that On-Line designated as confidential. Because Perkin-Elmer retained some records containing confidential materials relating to the On-Line spectrometer, On-Line argues that the district court improperly granted summary judgment on the breach of contract claim.

The district court addressed On-Line's argument with regard to Perkin-Elmer's alleged failure to return documents and held that On-Line did not raise the failure to return documents as a basis for liability in the breach of contract claim in its complaint. Because On-Line failed to raise that claim in a timely manner, it was not error for the district court to reject On-Line's effort to raise that aspect of the contract as a basis for liability at the summary judgment stage.

C. The Unfair Trade Practices Claims

The district court held that On-Line's unfair trade practices claims are preempted by CUTSA. In its complaint, On-Line raised claims against Perkin-Elmer under the Connecticut Uniform Trade Practices Act. Specifically, On-Line alleged that Perkin-Elmer had improperly used trade secrets obtained from On-Line to make its own

products and had represented to a variety of parties that On-Line's trade secrets were its own. The district court concluded that those allegations constituted nothing more than CUTSA violations and that the unfair trade practice claims were therefore preempted by section 37-57(a).

On-Line argues that because Perkin-Elmer gained access to its trade secrets under the guise of offering a license agreement, its claims are not preempted by CUTSA. We cannot agree. All of On-Line's allegations relate to the misappropriation of trade secrets, as is clear from On-Line's complaint, which relies upon Perkin-Elmer's alleged acquisition and use of On-Line's confidential information. As a result, we agree with the trial court that CUTSA preempts On-Line's unfair trade practices claims.

IV

On-Line contends that the district court erred when it dismissed Sick, A.G., from the lawsuit based on a lack of personal jurisdiction. In support of its argument, On-Line points to several events: a visit by a Sick, A.G., representative to On-Line's facility in East Hartford, Connecticut; a nondisclosure agreement with On-Line signed by a representative of Sick, A.G.; a report prepared by a representative of Sick, A.G., relating to his visit to the On-Line facility; the receipt by Sick, A.G., of a copy of On-Line's business plan; and a subsequent inquiry by Sick, A.G., to On-Line.

The trial court concluded that the evidence offered in support of On-Line's claim of personal jurisdiction over Sick, A.G., was insufficient to establish personal jurisdiction under Connecticut's long-arm statute, Conn. Gen. Stat. § 33-929. The court found that none of the allegations regarding Sick, A.G., were sufficient to constitute tortious conduct under Conn. Gen. Stat. § 33-929(f), solicitation of business under Conn. Gen.

Stat. § 33-929(f)(2), or a business transaction under Conn. Gen. Stat. § 33-929(e). On-Line has not specifically challenged any of those findings, but instead has made only a general assertion that the district court's ruling is "incorrect and inequitable." Because On-Line has failed to point out any specific errors in the district court's analysis, and because the court's jurisdictional ruling is not otherwise flawed, we uphold the district court's ruling that it lacked personal jurisdiction over Sick, A.G.

* * * * *

In summary, we affirm the grant of summary judgment with respect to On-Line's state law claims and with respect to the order dismissing Sick, A.G., on grounds of lack of personal jurisdiction. As to the patent claim, we vacate the grant of summary judgment of noninfringement and remand that issue to the district court for further proceedings.

Each party shall bear its own costs for this appeal.

AFFIRMED IN PART, VACATED IN PART, and REMANDED.