UNITED STATES DISTRICT COURT
DISTRICT OF CONNECTICUT

On-Line Technologies, Inc., Plaintiff,	:	
v.	:	**Case No. 3:99cv2146 (JBA)**
Perkin-Elmer Corp., et al., Defendants.	:	

RULING ON DEFENDANTS' MOTION FOR RECONSIDERATION [DOC. # 255]

In this patent case, plaintiff On-Line Technologies ("OLT") claims that defendants Perkin-Elmer Corporation and associated entities (collectively "PE"), infringed U.S. Patent No. 5,440,143 (the "'143 Patent") providing improvements to a device known as a White cell, or a long-path gas cell, the function of which was described in the Federal Circuit's prior ruling on appeal in this case. See On-Line Techs., Inc. v. Perkin-Elmer Corp., 386 F.3d 1133, 1135-36 (Fed. Cir. 2004). Following remand, the parties stipulated that all of defendants' "MCS100E instruments sold in the United States include gas cells that include all of the elements of Claim 1 of the '143 Patent, as that Claim was construed by the United States Court of Appeals for the Federal Circuit in its decision dated October 13, 2004, and that would infringe Claim 1 of the '143 Patent, if that claim is valid and enforceable." Stip. [Doc. # 229] ¶ 1.

The remaining question thus being whether Claim 1 of the '143 Patent is valid and enforceable, defendants filed a motion

for summary judgment claiming invalidity on anticipation and obviousness grounds, and for failure to name a co-inventor, which motion the Court denied in a ruling issued March 23, 2006. See Ruling [Doc. # 252]. Defendants now move for reconsideration of the Court's Ruling as to the anticipation determination only, arguing that contrary to the Court's findings, U.S. Patent No. 5,009,493 (the "Koch Patent") alone teaches the use of a toroid in a White cell and increased coincidence of focii in two orthogonal planes, and it is irrelevant whether the Koch Patent teaches any particular order of correction or optimization technique, such as ray tracing, because such features are not limitations of Claim 1 of the '143 Patent as construed by the Federal Circuit. See Def. Mot. [Doc. # 255]. Plaintiff opposes, contending that defendants' position is based on a misreading of the Federal Circuit's decision and would require the Court to read certain language into the Koch Patent while simultaneously reading certain other language out of the '143 Patent. For the reasons that follow, defendants' Motion for Reconsideration will be granted and the Court's Ruling modified as set out below.

I. Standard

The standard for granting a motion for reconsideration "is strict, and reconsideration will generally be denied unless the moving party can point to controlling decisions or data that the court overlooked – matters, in other words, that might reasonably

be expected to alter the conclusion reached by the court." Shrader v. CSX Transp., Inc., 70 F.3d 255, 257 (2d Cir. 1995). Reconsideration is appropriate only "if there has been an intervening change in controlling law, there is new evidence, or a need is shown to correct a clear error of law or to prevent manifest injustice." United States v. Sanchez, 35 F.3d 673, 677 (2d Cir. 1994).

Here, defendants identify a misreading by the Court of the expert report of Duncan Moore, Ph.D. as well as a potential misapplication of the Federal Circuit's claim construction in assessing invalidity, and thus the Court grants defendants' motion in order to address these issues.

II. Factual/Procedural Background

Claim 1 of the '143 Patent claims:

> 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.

'143 Patent [Doc. # 228, Ex. A], Claim 1.

The Federal Circuit found that "[t]he 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." 386 F.3d at 1136. The Circuit also explained that "[t]he 143 patent sought to address the problem of astigmatic diffusion of the light beam passing through the cell," and determined that "[t]he 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. 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.

The Circuit held 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," reaching that conclusion "because the specification makes clear that the claim language referring to spherical surfaces with cylindrical components includes toroidal surfaces." Id. at 1137, 1139 ("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 Koch Patent summarizes its invention as follows:

> It is an object of the invention to improve a mirror arrangement of the kind described above [for a beam path in a White cell] such that the astigmatic imaging error is considerably reduced. The mirror arrangement of the invention defines a beam path in a multiple-reflection [White] cell for measuring the absorption of light in a measuring gas, the cell having an entrance aperture and an exit aperture separated from each other by a predetermined distance. The mirror arrangement includes: an entrance aperture mirror and an exit aperture mirror having respective reflective surfaces approximating respective ellipsoids; the entrance aperture mirror determining first and second focal points (F_1, F_2) and the exit aperture mirror defining third and fourth focal points (F_3, F_4); a field mirror disposed opposite the aperture mirrors so as to define a beam path for a beam which permits the entrance aperture to be imaged into the exit aperture via the aperture mirrors and the field mirror . . . .

> [T]he form of the aperture mirrors is configured to approximate an ellipsoid with the focal point spacing being approximately equal to half the distance between the entrance aperture and the exit aperture.
>
> By relativizing the focal point distance of the ellipsoid to the distance between the entrance aperture and the exist aperture, the astigmatic imaging errors for sequential imaging by means of the aperture mirrors are reduced to a value which is not disturbing.

Koch Patent [Doc. # 228, Ex. B], 1:36-66.

Accordingly, the Koch Patent claims:

> 1. A mirror arrangement for defining a beam path in a multiple-reflection cell for measuring the absorption of light in a measuring gas, the cell having an entrance aperture and an exit aperture separated from each other by a predetermined distance, the mirror arrangement comprising: an entrance aperture mirror and an exit aperture mirror having respective reflective surfaces approximating respective ellipsoids; said entrance aperture mirror defining first and second focal points (F_1, F_2) and said aperture mirror defining third and fourth focal points (F_3, F_4); a field mirror disposed opposite of and at a confocal distance from each of said aperture mirrors so as to define a beam path for a beam which permits said entrance aperture to be imaged into said exit aperture via said aperture mirrors and said field mirror; said entrance aperture and said exit aperture being disposed at opposite ends of said field mirror; said first and second focal points (F_1, F_2) being separated by a first focal point spacing (F_1-F_2) and said third and fourth focal points (F_3, F_4) being separated by a second focal point spacing (F_3-F_4) and, said first and second focal point spacings (F_1-F_2 and F_3-F_4) having a sum which is approximately equal to said predetermined distance.
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> 2. The mirror arrangement of claim 1, said field mirror having a reflective field mirror surface corresponding to an ellipsoidal surface, said field mirror surface defining fifth and sixth focal points (F_5, F_6) disposed at a third focal point spacing (F_5-F_6) from each other; said beam being a bundle of rays with one of said rays being a central ray having respective incident points (P_2, P_4) on said aperture mirrors; and, said incident points being separated by a spacing equal to said third focal point spacing (F_5-F_6).
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> 3. The mirror arrangement of claim 1, said aperture mirrors being component portions of a toroid having

respective radii of curvature which determine the respective planar center points of said aperture mirrors.

Id., Claims 1, 2, 3.

In the Summary Judgment Ruling, the Court rejected defendants' anticipation argument based on two areas of material fact it found to be in dispute: "first, whether defendants' evidence can support a conclusion that the Koch Patent alone anticipated Claim 1 of the '143 Patent; and second, whether Koch, which utilizes "first order" optimization techniques, can be found to anticipate the "third order" ray tracing technique utilized for optimization of the mirror arrangement in the '143 Patent." Ruling at 6.

Specifically, the Court found that the conclusion of defendants' expert, Duncan Moore, "that a combination of the Koch and Chernin references would render '143 obvious at least shows that there is a disputed issue of material fact concerning whether Koch alone anticipated the '143 Patent as required in an anticipation analysis under § 102."[1] Id. at 7. The Court also noted that although "Claim 1 does not claim a 'method,' i.e., does not patent the ray tracing computer program itself," on the basis of the testimony of plaintiff's expert, Warren Vidrine, Ph.D., that "a working model of the invention in Claim 1 requires

[1] As noted below, at the April 24, 2006 status conference, the Court acknowledged its misstatement of Moore's report. See infra at 9.

utilization of a ray tracing technique, which is capable of 'optimization of the whole ray bundle in all dimensions (which also minimizes distortions due to second and third-order effects,'" in contrast to the Koch Patent which "only claims a mirror arrangement that 'is selected using simple first-order optical theory' and does not claim to increase coincidence of focii in more than one plane," a dispute of material fact remained "with respect to whether Claim 1 of the '143 Patent reads on every element of the Koch Patent, given the differences in optimization technology and theory between the two." Id. at 8-9 (citing Vidrine Aff., Berg Decl. [Doc. # 234] ¶ 3(a)). The Court rejected, however, plaintiff's other asserted differences between Claim 1 and the Koch Patent, specifically dismissing the argument that "Claim 1 covers the entire gas cell, including mirrors fixed into ends of the cell with entry and exit apertures drilled through the 'first end' of the cell, . . . whereas the Koch Patent claims only the 'mirror arrangement,' not the entire cell, and utilizes entry and exit apertures outside the mirror apparatus," because "the machined mirrors in the endplates are covered in dependent Claim 5 of the '143 Patent, not in Claim 1."[2] Id. at 9 n.3.

[2] Additionally, as discussed in more detail below, while not explicitly claiming a long-path gas cell, the mirror arrangements claimed in the Koch Patent necessarily encompass the White cell technology, on which the Koch Patent sought to improve.

As to Moore's expert report, the Court acknowledged at the April status conference that "instead of the combination of Koch and Chernin, [the Court] should have said Koch and White," leaving open to reconsideration the issue of whether, based on the patent and extrinsic evidence, including Moore's report, "there was a single reference that anticipated." Transcript of Status Conference ("Status Conf. Tr.") [Doc. # 265] at 17. This question implicates the meaning of Moore's report, as well as the ray tracing issue discussed above.

III. Discussion

A. Anticipation

"A claim is anticipated if each and every limitation is found either expressly or inherently in a single prior art reference." Bristol-Myers Squib Co. v. Ben Venue Labs. Inc., 246 F.3d 1368, 1374 (Fed. Cir. 2001) (en banc). Accordingly, "a prior art reference may anticipate when the claim limitations not expressly found in that reference are nonetheless inherent in it. . . . Under the principles of inherency, if the prior art necessarily functions in accordance with, or includes, the claimed limitations, it anticipates." In re Cruciferous Sprout Litig., 301 F.3d 1343, 1349 (Fed. Cir. 2002). Additionally, "a prior art reference need not demonstrate utility in order to serve as an anticipating reference under section 102." Rasmusson v. Smithkline Beecham Corp., 413 F.3d 1318, 1326 (Fed. Cir.

2005). "Anticipation is a question of fact, . . . and is determined by first construing the claims and then comparing the properly construed claims to the prior art." In re Cruciferous Sprout Litig., 301 F.3d at 1346. Moreover, "[a] century-old axiom of patent law holds that a product which would literally infringe if later in time anticipates if earlier." Upsher-Smith Labs., Inc. v. Pamlab, LLC, 412 F.3d 1319, 1322 (Fed. Cir. 2005). Additionally, while the scope of the allegedly infringed claim is limited to its proper construction, "[a]ll matter described in an issued United States patent is fully effective as a reference for purposes of anticipation as of the date when the application for that patent was filed." See Donald S. Chisum, Chisum on Patents § 3.07.

B. Analysis

The Federal Circuit interpreted the purpose of the '143 Patent to be "to address the problem of astigmatic diffusion of the light beam passing through the cell [by] shap[ing] 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." 386 F.3d at 1136. Accordingly, "each claim of the '143 patent," including Claim 1, "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. (citing '143 Patent). The Circuit agreed with plaintiff that properly construed, this reference "defines a set of curved surfaces that includes a toroidal surface." Id. at 1137.

Likewise, the Koch Patent[3] teaches a modification in the mirror arrangement of a White cell through use of a toroidal mirror "such that the astigmatic imaging error is considerably reduced." Koch Patent 1:15-35; id. 2:6-16 ("[I]t is advantageous to configure the ellipsoid as a portion of a toroid . . . with the toroid having radii of curvature which are equal to those which determine the planar center point of the particular ellipsoid. . . ."); accord Moore Report at 8, 11, 12 ("Toroidal objective surfaces used to correct astigmatism in White Cells were described by Koch;" "Koch describes a mirror arrangement in a White Cell where the objective mirrors . . . have been made

[3] The Court acknowledges plaintiff's request to file a motion to strike the Koch Patent from the case on the basis of delayed disclosure, see 7/12/06 Letter Motion [Doc. # 275], but finds that such a drastic remedy is not warranted. OLT disclosed the patent before the close of discovery nearly five years ago, in November 2001. Accordingly, regardless of the veracity of plaintiff's allegations that defendants delayed production of the Koch Patent, the Court finds that plaintiff has not been prejudiced by any such delay and thus the statutory concerns regarding "unfair and prejudicial surprise by the production of unexpected and unprepared-for prior art references at trial," see ATD Corp. v. Lydall, Inc., 159 F.3d 534, 551 (Fed. Cir. 1998) (citing 25 U.S.C. § 282), are not implicated. Plaintiff's contemplated motion to strike would therefore not be well-founded.

from portions of a toroid;" "Koch used toroidal mirrors in a White Cell;" "Koch corrected the astigmatism in a White Cell by making both objective surfaces toroidal").

Thus, the Federal Circuit has construed Claim 1 as a White cell utilizing toroidal mirrors to reduce astigmatism, and the Koch Patent's preferred embodiment also used toroidal objective mirrors. The "set of curved surfaces" defined by Claim 1's reference to "a pair of 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," thus includes the toroidal surfaces taught by Koch.[4] Accord Moore Report at 11 ("If '143 were construed to include a toroidal shaped objective mirror . . . then the patent would be obvious because a toroid objective mirror in a gas cell is taught by Koch.").

As to plaintiff's argument distinguishing the '143 Patent from Koch because the former claims a complete gas cell whereas the latter claims only a mirror arrangement, the Court already

[4] Moreover, although plaintiff suggests that the Federal Circuit's statement of the '143 Patent's intended result – to increase coincidence of focii in two orthogonal planes, thereby to maximize the energy throughput characteristic of said cell – distinguishes Claim 1 in the '143 Patent from Koch, as plaintiff itself recognizes in its opposition memorandum, "statements of intended results do not change or otherwise limit a claim." See Pl. Opp. at 7 (citing Bristol-Myers Squibb Co., 246 F.3d at 1375).

rejected this contention in its Ruling. Plaintiff acknowledges defendants' argument that a White cell is inherent in Koch, but contends "it is undisputed that Claim 1 of the '143 patent teaches using the mirrors as end-plates, which is claimed by neither White nor Koch." Pl. Opp. at 4. However, as the Court determined in its Ruling in rejecting plaintiff's argument, "the machined mirrors in the endplates are covered in dependent Claim 5 of the '143 Patent, not in Claim 1." Ruling at 9 n.3. Further, as noted above, "[i]t is well settled that a prior art reference may anticipate when the claim limitations not expressly found in that reference are nonetheless inherent in it," and "[u]nder the principles of inherency, if the prior art necessarily functions in accordance with, or includes, the claimed limitations, it anticipates." In re Cruciferous Sprout Litig., 301 F.3d at 1349. A White cell is inherent in the Koch Patent because the mirror arrangement taught in Koch "necessarily functions in accordance with" a White cell.

As to the issue of ray tracing as a means of increasing coincidence of focii in two orthogonal planes, thereby maximizing energy throughput, plaintiff concedes that the '143 Patent does not require such ray tracing. Status Conf. Tr. at 33 (ray-tracing program is "important, but it's not an essential – it's not a requirement of the '143 patent"); Pl. Opp. at 4 ("On-Line identifies using ray-tracing as one method of achieving, by exact

measurement, focusing the light at the exit point of the gas cell."). Indeed, Claim 1 teaches an apparatus, not a method such as ray tracing, and although the specification suggests ray tracing, plaintiff acknowledges that "[r]ay-tracing programs are [only] the preferred method used to execute the '143's claim of focusing the light at the exit point in every spatial dimension." Pl. Opp. at 7.[5]

Thus, as plaintiff acknowledges, ray tracing is a method for optimizing the toroidal mirrors used in both the '143 Patent and Koch – the mirror arrangements proposed in the '143 Patent and Koch both reduce astigmatism by causing a higher coincidence of focii in two orthogonal planes via use of toroidal mirrors in White cells. That the '143 Patent's toroidal mirrors may be more optimized than those in Koch, by virtue of the use of ray tracing or otherwise, does not undercut Koch's anticipation of the '143 Patent because ray tracing is not a limitation of Claim 1 of the '143 Patent as construed by the Federal Circuit. See Rasmusson, 413 F.3d at 1326 ("[A] prior art reference need not demonstrate

[5] The testimony of plaintiff's expert, Warren Vidrine, Ph.D., that the degree of asphericity in the '143 Patent "is determined based on ray-trace optimization of the whole ray bundle in all dimensions," Vidrine Aff. [Doc. # 234, Ex. 12] ¶ 3(a), cannot be used to create a genuine issue of fact where it contradicts both plaintiff's concession that ray tracing is not an essential part of the '143 Patent and the claim construction provided by the Federal Circuit. See On-Line Techs., Inc., 386 F.3d at 1139 ("Extrinsic evidence . . . cannot be used to alter a claim construction dictated by a proper analysis of the intrinsic evidence.").

utility in order to serve as an anticipating reference under section 102."); Bristol-Myers Squibb Co., 246 F.3d at 1378 (rejecting "failed experiment" argument, finding that "an inoperable invention or one which fails to achieve its intended result does not negative novelty") (internal quotation omitted). Likewise, the Court rejects plaintiff's argument that "On-Line accomplished what Koch only hoped to do because the '143 patent focuses the light at the exit point of the cell in every spatial dimension," Pl. Opp. at 3, 7, because a limitation of specific dimensions and degree of optimization for the mirror arrangement does not appear in Claim 1, as construed by the Federal Circuit, and post-hoc attempts to redefine a claim for validity purposes must be rejected. See In re Paulsen, 30 F.3d 1475, 1480 (Fed. Cir. 1994) (rejecting "post hoc attempt to redefine the claimed invention by impermissibly incorporating language appearing in the specification into the claims").[6]

[6] Plaintiff also asserts an issue of fact based on portions of Moore's report and deposition testimony in which he makes reference to other prior art to be considered in combination with Koch. However this attempt must be rejected because those statements were made in the context of defendants' argument at the time that Claim 1 was narrower than subsequently construed by the Federal Circuit, and did not include toroidal surfaces, and thus Moore relied on prior art references other than Koch in his report and testimony. Indeed, as referenced above, Moore also stated in his report that "[i]f '143 were construed to include a toroidal shaped objective mirror which I believe to be incorrect as stated above, then the patent would be obvious because a toroid objective mirror in a gas cell is taught by Koch." Moore Report at 11.

_____Thus, having reconsidered its Ruling, the Court concludes that every limitation of Claim 1 of the '143 Patent is taught by or inherent in Koch, and Claim 1 is therefore invalid due to anticipation by prior art.

III. Conclusion

For the foregoing reasons, defendants' Motion for Reconsideration [Doc. # 255] is GRANTED and the Court modifies its Ruling as described above, concluding that Claim 1 of the '143 Patent is invalid due to anticipation by the Koch Patent.

IT IS SO ORDERED.

/s/
Janet Bond Arterton
United States District Judge

Dated at New Haven, Connecticut this 15th day of September, 2006.