United States Court of Appeals for the Federal Circuit

01-1202

SMITH ENGINEERING COMPANY, INC.

Plaintiff-Appellee,

v.

EISENMANN CORPORATION,

Defendant-Appellant.

DECIDED: January 17, 2002

Before MAYER, Chief Judge, CLEVENGER and LINN, Circuit Judges.

Opinion for the court filed by Circuit Judge CLEVENGER. Dissenting-in-part and Concurring-in-part Opinion filed by Circuit Judge LINN.

CLEVENGER, Circuit Judge.

Eisenmann Corporation appeals the denial of its post-trial motions after judgment on a jury verdict that its Regenerative Thermal Oxidizer infringed U.S. Patent No. 4,280,416, held by Smith Engineering Company, Inc., both literally and under the doctrine of equivalents. See Smith Eng'g Co. v. Eisenmann Corp., No. CV 98-3937 (C.D. Cal. October 25, 2000) (order

denying motions for judgment as a matter of law); Smith Eng'g Co. v. Eisenmann Corp., No. CV-98-3937 (C.D. Cal. December 13, 2000) (order awarding damages, costs, and attorney fees). For the reasons set forth below, we affirm the district court's judgment.

I

Smith Engineering Company, Inc. ("Smith") is the holder of U.S. Patent No. 4,280,416 ("the '416 patent"), entitled "Rotary Valve For a Regenerative Thermal Reactor." The '416 patent was issued to inventor Philip Edgerton on July 28, 1981, and was purchased by Smith in 1998. The '416 patent is generally directed towards a pollution control apparatus which takes in polluted air and funnels it towards an internal combustion chamber. The combustion process separates out pollutants, allowing cleansed air to be discharged back into the environment. Furthermore, the patented technology utilizes heat exchange chambers which absorb heat from the outgoing cleansed air and transmit it to the incoming polluted air, thus reducing the energy needed to perform combustion.

A

Two independent claims of the patent are at issue:

> 1. A thermal reactor apparatus for purifying pollutant gases by incineration, said thermal reactor apparatus comprising an incineration chamber, a plurality of heat exchange chambers adjacent said incineration chamber, concentric substantially annular inlet and exhaust ducts, each of said inlet duct and said outlet duct mounted for communication with each of said heat exchange chambers, flow control means mounted adjacent said annular ducts, openings formed in said flow control means for providing a first flow path between a first heat exchange chamber and said inlet duct and a second flow path between a second heat exchange chamber and said outlet duct, said second heat exchange chamber being non-adjacent said first heat exchange chamber, said flow control means being rotatable for establishing said first and second flow paths through consecutive heat exchange chambers and thereby alternately heating one of said heat exchange chambers with effluent from said incineration chamber and then cooling said heat exchange chamber by the absorption of the heat in preheating said incoming pollutant gases prior to entry to said incineration chamber.
>
> 8. A thermal regenerative pollution control apparatus having a plurality of adjacent heat exchange chambers mounted adjacent a purification chamber, an inlet conduit and an exhaust conduit, and a valve for controlling the flow of pollution, said valve comprising a stationary plate, a rotating plate and a drive means, said stationary plate having a plurality of inlet and exhaust ports formed therein to provide for communication of selected ones of said heat exchange chambers with said inlet conduit through an associated inlet port and with said exhaust conduits through an associated exhaust port, said rotating plate having an inlet opening for communication of a first heat exchange chamber with said inlet conduit through the associated inlet port and an exhaust

> opening for communication of a second heat exchange chamber with said exhaust conduit through the associated exhaust port, said first heat exchange chamber being nonadjacent to said second heat exchange chambers, whereby when said rotating plate is rotated by said drive means it acts to automatically control the flow of pollutant gases into said purification chamber from said first heat exchange chamber for preheating of said gases and into said second heat exchange chamber for cooling of the effluent gases prior to transfer into the atmosphere.

'416 patent, col. 5, lines 1-23 and col. 6, lines 11-35.

Claim 8 thus specifically claims a "stationary plate" structure, while this limitation is absent from claim 1. The specification of the '416 patent describes a "stationary plate" structure which aligns with a rotary plate to alternately create passageways between the heat exchange chambers and the inlet and exhaust ducts. '416 patent, col. 3, lines 56-61.

Claims 2, 3, and 6 depend from claim 1 and are also at issue. Dependent claim 6 includes a "stationary plate" limitation similar to that in claim 8. Construction of the terms in the independent claims suffices for the purpose of this appeal.

The accused device is the Regenerative Thermal Oxidizer ("RTO"), produced by Eisenmann Corporation ("Eisenmann"). As shown in the diagram below, the RTO admits polluted outside air into the RTO through an inlet. The inlet connects with a plenum, a "large, room-sized" area 20 to 30 feet in diameter. Located in the center of the plenum is a rotary distributor, which takes in polluted air from the plenum and directs it upwards. On top of the rotary distributor is a stator box, a wagon-wheel-like structure which aids in maintaining gas circulation. The polluted air passes through the stator box, entering the heat exchangers and combustion chamber. After combustion, cleansed air flows backwards through the heat exchanges, through the stator box, and passes down through a channel in the center of the rotary distributor. The cleansed air then enters into the outlet manifold, located underneath the rotary distributor, before exiting the apparatus.

B

The jury entered judgment on a special verdict jury form. The jury found that each limitation of the claims was literally satisfied by the Eisenmann RTO, except for the "stationary plate" requirement of independent claim 8 and dependent claim 6. The jury found that a structure equivalent to the "stationary plate" existed. Furthermore, the jury found that infringement was willful, and awarded damages of $11 million.

Post-trial, Eisenmann moved for judgment as a matter of law ("JMOL"), for a new trial, and for remittur. The district court denied all of Eisenmann's motions, except that the court ordered a new trial unless Smith would accept a reduction of damages to approximately $6.2 million. Smith did so. The court further granted Smith attorney fees, costs, and interest amounting to approximately $3.1 million.

Eisenmann appeals the denial of its JMOL motions as well as the award of damages and attorney fees.

II

We review a district court's denial of JMOL without deference, reversing only if the jury's factual findings are not supported or if the legal conclusions implied from the jury's verdict cannot in law be supported by those findings. Door Master Corp. v. Yorktowne, Inc. 256 F.3d 1308, 1312, 59 USPQ2d 1472, 1474 (Fed. Cir. 2001).

Eisenmann presents two primary arguments: 1) that claim 1 is in means-plus-function form, requiring a "stationary plate" such as that disclosed in the specification, and 2) that the plenum of Eisenmann's RTO does not fulfill the claim requirement of an "inlet duct".

A

The use in claim 1 of the word "means" in reciting "flow control means mounted adjacent said annular ducts" creates a presumption that 35 U.S.C. § 112 ¶ 6 is invoked. Sage Prods. Inc. v. Devon Indus. Inc. 126 F.3d 1420, 1427, 44 USPQ2d 1103, 1109 (Fed. Cir. 1997). Smith advances two arguments as to why this presumption should be overcome.

First, Smith asserts that the "flow control means" is not linked to a particular function, and thus the presumption does not apply. This is unconvincing. The function of the "flow control means" is given in the last part of claim 1 as:

> alternately heating one of said heat exchange chambers with effluent from said incineration chamber and then cooling said heat exchange chamber by the absorption of the heat in preheating said incoming pollutant gases prior to entry in said incineration chamber.

'416 patent, col 5. lines 18-23.

Smith's second argument carries more weight. As the Sage Products court noted, "where a claim recites a function, but then goes on to elaborate sufficient structure, material, or acts within the claim itself to perform entirely the recited function, the claim is not in means-plus-function format." Sage Prods., 126 F.3d at 1427-1428, 44 U.S.P.Q. 2d at 1109. Here, the patent discloses a flow control means with openings that rotates to alternately establish passageways leading from the inlet duct to the heat exchange chamber and from the heat exchange chamber to the outlet duct. The structure, functionality, and location of the flow control means are all given. As the district court correctly concluded, this recitation of specific structure overcomes the presumption established by the use of the word "means", and section 112 ¶ 6 does not apply.

Absent the application of section 112 ¶ 6, the doctrine of claim differentiation suggests that claim 1 should not be interpreted to literally require the presence of a stationary plate structure such as that disclosed in the specification. Claim differentiation disfavors reading into independent claims limitations found in dependent claims. See Karlin Tech., Inc. v. Surgical Dynamics, Inc. 177 F.3d 968, 972, 50 USPQ2d 1465, 1468 (Fed. Cir. 1999). Here, dependent

claim 6 requires "a stationary plate mounted between said flow control means and said heat exchange chambers, said stationary plate having inlet ports and outlet ports for establishing said flow paths into said heat exchange chambers." '416 patent, col. 5, line 41 – col. 6, line 2.

Properly construed, claim 1 does not require the presence of a "stationary plate."

B

Eisenmann also argues that the "inlet duct" requirement of claim 1 is not met. Specifically, Eisenmann contends that the plenum of its RTO should not be construed as satisfying this requirement. Indeed, the '416 specification does not disclose a plenum-like structure. Rather, the '416 diagrams depict a series of tubes leading directly to the flow control means. Eisenmann maintains that this favors a claim construction of "inlet duct" which excludes a "large, room-sized" plenum.

We are unconvinced. The dictionary definition of "duct" is "any tubular passage through which a substance . . . is conveyed." The American Heritage Dictionary 402 (1981). Such wording is broad enough to encompass the Eisenmann plenum. Even more problematic for Eisenmann is the language of the specification itself. The specification states that "[t]he exhaust gas enters the thermal reactor apparatus through inlet conduit 37. Inlet conduit 37 terminates at annular inlet duct 36." '416 patent, col. 3, lines 28-30. Contrary to Eisenmann's assertions, it is thus not true that the specification only teaches an inlet duct leading from the outside environment to the flow control means. Indeed, the specification expressly employs the term inlet duct to refer to a passageway entirely enclosed within the apparatus, rather than indicating a conduit leading from the outside environment into the apparatus.

Both the dictionary definition and the language of the specification support the conclusion that the plenum of Eisenmann's RTO fulfills the claim requirement of an "inlet duct."

C

Having rejected Eisenmann's main challenges to the verdict of literal infringement as to claim 1, we may dispose of Eisenmann's remaining arguments in short order.

Eisenmann's charge that the claim requirement of "flow control means mounted adjacent said annular ducts" is not met represents a claim that the Eisenmann rotary distributor is not directly mounted on the inlet pipe on the wall of the RTO. Concluding that the plenum itself satisfies the requirement of an "inlet duct" renders this argument null. Eisenmann additionally asserts that as the rotary distributor is "inside" the plenum, it cannot be construed as "adjacent" the airspace contained within the plenum. This is simply without merit.

Similarly, Eisenmann asserts that its RTO does not satisfy the claim requirement that "each of said inlet duct and outlet duct [be] mounted for communication with each of the heat exchange chambers". Specifically, Eisenmann asserts that this claim language requires direct communication between the inlet pipe on the wall of the apparatus and the heat exchange chambers. As discussed above, concluding that the plenum itself constitutes an inlet duct obviates Eisenmann's arguments as to direct mounting. In addition, the '416 specification does not teach that the inlet and outlet ducts must connect directly to the heat exchangers. Rather,

the ducts connect to the flow control means, which connects to the heat exchangers. This is a teaching of indirect communication which corresponds to the structure of Eisenmann's RTO, as the plenum admits air to the rotary distributor, which connects with the heat exchange chambers.

Eisenmann also contends that its RTO does not satisfy the claim requirement of "concentric ducts." In large part, this also represents a claim that the outlet duct of the RTO, the outlet manifold, is not concentric with the wall-mounted inlet conduit. As already discussed, applying the proper definition of "inlet duct" requires a comparison between the outlet manifold and the plenum of the RTO, rather than the inlet conduit. As Smith established at trial, the plenum and outlet mainfold are both annular and share a common center. This provides ample support for the jury's finding that this claim limitation is met.

Additionally, Eisenmann argues that statements made during the prosecution history, distinguishing over a prior art reference, U.S. Patent No. 4,126,419 ("Katabuchi"), operate to limit the patentee to the inlet/outlet arrangement disclosed in the specification. We disagree. The relevant statements merely repeat the claim language and thus do not establish a disclaimer of structure. In addition, Katabuchi teaches an arrangement where the waste gases flow through a passage "of the rotary switching valve . . . " Katabuchi, col. 6, lines 26-29. This is unlike Eisenmann's plenum, which is not "part of" the rotary distributor. Thus, even were we to interpret the identified statements as disclaiming structure present in Katabuchi, there is no disclaimer of a plenum structure.

The district court's claim construction and the jury finding of literal infringement of claim 1 are thus unassailable. Because we uphold the jury verdict of literal infringement of claim 1, we need not consider Eisenmann's arguments that the jury verdict for infringement of claims 6 and 8 under the doctrine of equivalents is procedurally flawed. See Pall Corp. v. Micron Separations, Inc. 66 F.3d 1211, 1220, 36 USPQ2d 1225, 1231 (Fed. Cir. 1995) (affirmance of infringement as to some claims obviates the need to review judgment of infringement as to other claims).

III

With regard to the award of damages, we review the district court's methodology for abuse of discretion and the amount of the damage award for clear error. Stryker Corp. v. Intermedics Orthopedics, Inc. 96 F.3d 1409, 1413, 40 USPQ2d 1065, 1068 (Fed. Cir. 1996).

Eisenmann argues that the district court relied on estimates provided by Smith's expert, who testified he had calculated the figure based on a hypothetical negotiation taking place in 1994 between Eisenmann, Smith, and the original patentee, Mr. Edgerton. According to Eisenmann, the reasonable royalty standard requires that the calculations involve only Eisenmann and Mr. Edgerton, and Smith's expert improperly skewed the calculations by including Smith, thereby allowing the calculations to be influenced by Smith's own prospective sales.

Eisenmann's assertions are unsupported by the record. Eisenmann provided documents showing that its gross profits on RTOs from 1994 to 1998 amounted to approximately $10 million. Budgeted profits amounted to about $12.8 million. Smith's expert testified that he essentially divided the Eisenmann profits in half to arrive at the $6.2 million figure. Further, on

cross examination, Smith's expert testified that his opinion would not have changed had the hypothetical negotiation taken place without Smith, and that Eisenmann's own profits as to the infringing device formed the main basis for his estimate.

We find no clear error as to the district court's calculation of damages and no abuse of discretion as to the methodology it employed.

IV

We review the district court's decision of exceptionality for clear error and the decision to award attorney fees for abuse of discretion. Pharmacia & Upjohn Co. v. Mylan Pharm., Inc., 182 F.3d 1356, 1359, 51 USPQ2d 1466, 1468 (Fed. Cir. 1999). Willful infringement suffices to support an award of attorney fees. Mahurkar v. C.R. Bard, Inc., 79 F.3d 1572, 1579, 38 USPQ2d 1288, 1292 (Fed. Cir. 1996).

The Eisenmann officer who coordinated contact with attorneys was aware of the '416 patent as of 1994. He forwarded the patent to the engineering department, which made the determination that the Eisenmann RTO did not infringe. Eisenmann did not produce evidence of opinion of counsel. This presents a textbook example of willful infringement, and a instructive lesson on the need to consult legal counsel in evaluating the risk of patent infringement. Both the jury determination of willful infringement and the district court's decision to award attorney fees are clearly supported by the record.

Eisenmann cites Gustafson, Inc. v. Intersystems Industrial Products, Inc., 897 F.2d 508, *13 USPQ2d 1972 (Fed. Cir. 1990),* and State Industries, Inc. v. A.O. Smith Corp., 751 F.2d 1226, 224 USPQ 418 (Fed. Cir. 1985), for the proposition that, since neither Smith nor Edgerton notified Eisenmann of the patent prior to the filing of the complaint, willful infringement may not be found. These cases are inapt. In Gustafson, there was no evidence that the infringer knew of the existence of the patent prior to the filing of the complaint. Gustafson, 897 F.2d, at 510, 13 USPQ2d at 1974. Here, there is an explicit concession. In State Industries, the infringer filed suit a mere 22 days after the patent issued. State Industries, 751 F.2d at 1236, 224 USPQ at 425. Here, Eisenmann knew about the patent four years prior to the filing of suit.

V

Eisenmann also alleges that the district court failed to comply with the relevant local rules in issuing an order to tax costs without first setting a hearing. Eisenmann concedes that it received notice.

We note that the prior local rules governing this action provide that no appearance of counsel is necessary if the opposing party has not filed objections to the bill of costs submitted by the prevailing party. C. D. Cal. Local Rule 16.3.2 (repealed October 1, 2001). Here, Eisenmann allowed over five weeks to lapse without responding to the bill of costs submitted by Smith. With regard to attorney fees, the relevant prior local rules provide that, "[a]ny motion or application for attorney's fees shall be served and filed within fourteen (14) days after the entry of judgment or other final order, unless otherwise ordered by the Court". C. D. Cal. Local Rule

16.10 (repealed October 1, 2001). Here, in issuing its October 25 ruling denying Eisenmann's JMOL motions, the district court merely chose to exercise its discretion in ordering Smith to submit documentation as to attorney fees. Eisenmann did not respond.

We find nothing improper in the district court's award of fees and costs.

CONCLUSION

For the forgoing reasons, the final decision of the district court is affirmed.

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LINN, Circuit Judge, concurring-in-part and dissenting-in-part.

I join the majority's well-reasoned analysis regarding Parts IIA and V; however, I must, respectfully, dissent from my colleagues in Part IIB. In my view, no reasonable juror could conclude that a plenum satisfies the inlet duct limitation. Furthermore, the lack of inlet *and* outlet ports in the stator box requires reversal of the finding of infringement under the doctrine of equivalents.

In its pre-trial Markman order, the district court defined "duct" to mean "a passageway through which gases flow." The majority, citing the American Heritage Dictionary, describes a duct as "any tubular passage through which a substance is conveyed." A duct can similarly be defined as "a hole, pipe or channel for carrying a fluid. . . ." Chambers Dictionary of Science and Technology 861 (1999). Since neither the district court's nor the majority's definition differs significantly from the technical dictionary, I find no error in the claim construction.

The majority correctly describes the plenum of the Eisenmann RTO as a "'large, room-sized' area 20 to 30 feet in diameter." Gases flow within the plenum; however, that does not mean that gases flow *through* it. Using the majority's definition, a plenum is not a tubular passage through which gases are being conveyed. The "room-sized" plenum of the accused device houses the rotary distributor and other components. No reasonable juror could conclude that the structure of the Eisenmann plenum is a "tubular passage." In addition to having a different structure than a "tubular passage," a plenum has different characteristics than a duct. A plenum chamber is a "sealed chamber pressurized from an air intake." Chambers 883. Consistent with that definition, Eisenmann's divisional general manager, Mr. Somary, testified that the accused device's plenum is used "to decrease or buffer or near eliminate the pressure fluctuations." While a duct controls flow by physically constraining fluid through a passage, fluid moves within plenums by way of pressure differentials. While mindful of the respect we owe a jury finding, equating a plenum and a duct rises to the level of error that should be set aside. Thus, I would reverse the finding of literal infringement of claim 1 and its dependent claims.

Because the majority affirmed the jury verdict of literal infringement, it did not opine on the jury's finding that the Eisenmann RTO infringes claims 6 and 8 under the doctrine of equivalents. Since claim 6 depends from claim 1, and I believe that claim 1 is not infringed, I focus solely on claim 8. Although the majority did not reach claim 8 in its analysis, it did note that claim 8, unlike claim 1, specifically claims a "stationary plate." The jury found such a stationary plate missing from the Eisenmann RTO, but found the missing element under the doctrine of equivalents.

Infringement under the doctrine of equivalents requires that the accused device contain each limitation of the claim or its equivalent. Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 40 (1997) (noting that because each limitation contained in a patent claim is material to defining the scope of the patented invention, a doctrine of equivalents analysis must be applied to individual claim limitations, not to the invention as a whole). An element in the accused device is equivalent to a claim limitation if the differences between the two are "insubstantial" to one of ordinary skill in the art. Id. Alternatively, a patentee can show "equivalence" between the elements of the accused device and the claimed limitations of the patent-in-suit, Warner-Jenkinson, 520 U.S. at 21, by showing that the missing element in the accused device "performs substantially the same function in substantially the same way to obtain the same result" as the claim limitation. Graver Tank & Mfg. Co. v. Linde Air Prods. Co., 339 U.S. 605, 608 (1950).

Smith argued at trial and continues to argue that the "stator box" of the accused device is equivalent to the stationary plate required by claim 8. I disagree. The stator box of the Eisenmann RTO is a wagon-wheel type structure with spokes in it. The spokes form openings through which gases flow. Smith's expert, Mr. Trumpi, testified that the stator box works in conjunction with the rotary distributor to provide flow throughout the RTO.

Regarding the stationary plate, claim 8 specifically requires :

> said stationary plate having a plurality of inlet and exhaust ports formed therein to provide for communication of selected ones of said heat exchange chambers with said inlet conduit **through an associated inlet port** and with said exhaust conduits through an **associated exhaust port**, said rotating plate having an inlet opening for communication of a first heat exchange chamber with **said inlet conduit through the associated inlet port** and an exhaust opening for communication of a second heat exchange chamber with **said exhaust conduit through the associated exhaust port. . . .**

'416 patent, col. 6, lines 16-27 (emphasis added).

The district court instructed the jury:

> The phrase "Stationary plate having inlet ports and outlet ports" means a stationary plate having openings formed therein to permit the flow of gases between the ducts and heat exchange chambers. The phrase also requires that the ports be associated with either inlet ports or outlet ports at a particular time in the cycle.

To the extent that the stator box is made up of ports, its ports are neither inlet ports nor outlet ports. Rather, they are interchangeable. The district court's requirement that the stationary plate's ports "be associated with either inlet ports or outlet ports" vitiates the distinction in the claim between inlet ports and outlet ports. A correct claim construction would require that the stationary plate have ports that are inlet ports *and* ports that are outlet ports.

Although an erroneous claim construction would normally require a remand, I would nonetheless reverse the doctrine of equivalents finding. Any attempt by Smith to show that the lack of inlet ports *and* outlet ports is an insubstantial difference would run afoul of the all limitations rule. See e.g., Kustom Signals Inc. v. Applied Concepts, Inc., 264 F.3d 1326, 1333 (Fed. Cir. 2001) ("No claimed [limitation], or an equivalent thereof, can be absent if the doctrine of equivalents is invoked."). Since inlet *and* outlet ports would be absent from the stationary plate, resort to the doctrine of equivalents is not available. Thus, I would reverse the finding of infringement under the doctrine of equivalents of claim 8.

In light of the foregoing, I would reverse the denial of the post-trial motion for judgment as a matter of law of no infringement and vacate the award of damages and attorneys' fees.