

NOTE: This disposition is nonprecedential.

United States Court of Appeals for the Federal Circuit

2006-1305, -1326

MEMC ELECTRONIC MATERIALS, INC.,

Plaintiff-Appellant,

v.

MITSUBISHI MATERIALS SILICON CORPORATION,
MITSUBISHI SILICON AMERICA CORPORATION,
SUMITOMO MITSUBISHI SILICON CORPORATION (also known as Sumco),
SUMCO USA CORPORATION (also known as Sumco USA),
and SUMCO USA SALES CORPORATION (also known as Sumco USA Sales),

Defendants-Cross Appellants.

Robert M. Evans, Jr., Senniger Powers, of St. Louis, Missouri, argued for plaintiff-appellant. With him on the brief were David W. Harlan and Marc W. Vander Tuig. Also on the brief were Duane H. Mathiowetz and K.T. Cherian, Howrey, LLP, of San Francisco, California.

R. Terrance Rader, Rader, Fishman & Grauer PLLC, of Bloomfield Hills, Michigan, argued for defendants-cross appellants. With him on the brief were David T. Nikaido, Glenn E. Forbis, and Linda Dupont Mettes.

Appealed from: United States District Court for the Northern District of California

Judge Sandra Brown Armstrong

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United States Court of Appeals for the Federal Circuit

2006-1305, -1326

MEMC ELECTRONIC MATERIALS, INC.,

Plaintiff-Appellant,

v.

mitsubishi materials silicon corporation,
mitsubishi silicon america corporation,
sumitomo mitsubishi silicon corporation (also known as Sumco),
sumco usa corporation (also known as Sumco USA),
and sumco usa sales corporation (also known as Sumco USA Sales),

Defendants-Cross Appellants.

DECIDED: September 20, 2007

Before SCHALL, Circuit Judge, PLAGER, Senior Circuit Judge, and DYK, Circuit Judge.
PLAGER, Senior Circuit Judge.

In this patent infringement case, once again on appeal to this court, MEMC Electronic Materials, Inc. (“MEMC”), a supplier of silicon wafers to the semiconductor industry, filed suit in the United States District Court for the Northern District of California against Mitsubishi Materials Silicon Corporation, Mitsubishi Silicon America Corporation, Sumitomo Mitsubishi Silicon Corporation, SUMCO USA Corporation, and SUMCO USA Sales Corporation (collectively, “SUMCO”). MEMC alleged that, inter alia, SUMCO actively induced infringement of U.S. Patent No. 5,919,302 (the “302 patent”), assigned to MEMC, and SUMCO asserted affirmative defenses of non-

infringement and invalidity of the patent. On remand, following an earlier appeal, the trial court on cross-motions for summary judgment held that the asserted claims of the '302 patent were invalid for lack of enablement and they were not invalid for anticipation or obviousness. With respect to the issue of infringement, the trial court granted SUMCO's motion to exclude the expert report and testimony of MEMC's expert witness and granted SUMCO's motion for summary judgment that its products did not infringe the asserted claims of the '302 patent.

We conclude that the trial court did not abuse its discretion in excluding the expert report and testimony of MEMC's expert witness, and thus on this record we affirm the judgment of non-infringement. However, because there are genuine issues of material fact on the issue of enablement, we vacate the trial court's summary judgment of invalidity for lack of enablement. SUMCO's cross-appeal relating to its affirmative defenses of anticipation and obviousness is dismissed.

BACKGROUND

The '302 patent purports to disclose a method for producing semiconductor-grade single crystal silicon wafers that are substantially free of agglomerated vacancy intrinsic point defects.¹ Prior art methods often resulted in such defects, which can severely impact the yield of the silicon wafers.

The only independent claim at issue is claim 1, which claims the silicon wafer itself, not the method for producing it. Claim 1 requires the wafer to have a "first axially

¹ Single crystal silicon typically contains two types of intrinsic point defects: vacancy point defects, which occur when single silicon atoms are missing from the crystal lattice, and interstitial point defects, which occur when there are extra silicon atoms. Agglomerated defects result when point defects of the same type combine to form large vacancies or masses.

symmetric” vacancy-dominated region that is “substantially free of agglomerated vacancy intrinsic point defects.” ’302 patent col.23 ll.18-21. The patent expressly defines “substantially free of agglomerated intrinsic point defects” as “a concentration of agglomerated defects which is less than the detection limit of these defects, which is currently about 10^3 defects/cm³.” Id. col.15 ll.46-49.

MEMC filed suit against SUMCO in 2001, alleging that SUMCO was liable for direct infringement of the ’302 patent by selling and offering to sell its silicon wafers to Samsung Austin Semiconductor. MEMC further alleged that SUMCO induced infringement by Samsung Austin. During discovery, MEMC submitted the expert report of Dr. Mule’Stagno, an MEMC employee, who tested the accused SUMCO wafers and concluded that forty-three out of forty-five tested wafers infringed the claims of the ’302 patent. SUMCO filed a motion to exclude the expert report and testimony of Dr. Mule’Stagno with regard to the issue of infringement on the ground that they were inadmissible under Federal Rule of Evidence 702 and the standards set forth in Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579 (1993). In a March 2004 ruling, the trial court gave MEMC the opportunity to cure the alleged defects in Dr. Mule’Stagno’s expert report by submitting objective evidence that his testing methodology was generally accepted by at least a recognized minority of scientists in his field.² MEMC subsequently submitted additional declarations from Dr. Mule’Stagno.

In a separate March 2004 decision, without reaching the issue of whether the accused wafers are covered by the claims of the ’302 patent, the trial court granted

² MEMC Elec. Materials, Inc. v. Mitsubishi Materials Silicon Corp., No. 01-4925, slip op. at 11-12 (N.D. Cal. Mar. 1, 2004) (order).

SUMCO's motion for summary judgment that SUMCO was not liable for direct infringement or inducement of infringement. After the trial court entered final judgment of non-infringement, MEMC appealed to this court. We affirmed the trial court's judgment with respect to direct infringement because MEMC presented no evidence that SUMCO sold or offered to sell the accused wafers in the United States. MEMC Elec. Materials, Inc. v. Mitsubishi Materials Silicon Corp., 420 F.3d 1369, 1376-77 (Fed. Cir. 2005). We concluded, however, that there were genuine issues of material fact regarding whether SUMCO induced infringement on the part of Samsung Austin, and we remanded for further proceedings on that issue. Id. at 1379-80.

On remand, SUMCO filed a second motion to exclude Dr. Mule'Stagno's expert report and testimony on Daubert grounds. This time the trial court granted the motion, finding that the additional declarations submitted by Dr. Mule'Stagno failed to provide objective verification of his testing methodology.³ The parties also filed various motions for summary judgment, which the trial court decided without a hearing.⁴ The trial court granted SUMCO's motion for summary judgment of non-infringement, concluding that the wafers supplied by SUMCO to Samsung Austin did not literally infringe the claims of the '302 patent.⁵ The trial court also granted SUMCO's motion for summary judgment that the claims are invalid under 35 U.S.C. § 112, ¶ 1 for lack of enablement. Finally, the trial court granted MEMC's motion for summary judgment that the claims are not

³ MEMC Elec. Materials, Inc. v. Mitsubishi Materials Silicon Corp., No. 01-4925 (N.D. Cal. Feb. 24, 2006) (order).

⁴ MEMC Elec. Materials, Inc. v. Mitsubishi Materials Silicon Corp., No. 01-4925, 2006 WL 463525 (N.D. Cal. Feb. 24, 2006) (order).

⁵ The trial court on remand never reached the issue of inducement.

invalid under 35 U.S.C. § 102 for anticipation or under 35 U.S.C. § 103 for obviousness. The trial court entered final judgment on February 27, 2006.

MEMC challenges the trial court's ruling to exclude Dr. Mule'Stagno's expert report and testimony and appeals the non-infringement judgment. MEMC also appeals the trial court's judgment of invalidity due to lack of enablement. SUMCO has filed a "conditional cross-appeal" addressing anticipation and obviousness that is triggered if we do not affirm the judgment of non-infringement. We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(1).

DISCUSSION

1. Exclusion of Expert Testimony

The trial court excluded Dr. Mule'Stagno's expert report and declarations regarding infringement because MEMC failed to demonstrate that his testing methodology was scientifically reliable for establishing that SUMCO's wafers have "axially symmetric" vacancy-dominated regions that are "substantially free of agglomerated vacancy intrinsic point defects" as required by the claims. We review the trial court's exclusion of expert scientific testimony for abuse of discretion. Kennedy v. Collagen Corp., 161 F.3d 1226, 1227 (9th Cir. 1998).

MEMC contends that the various tests performed by Dr. Mule'Stagno are conventional industry tests for analyzing the physical characteristics of silicon wafers. SUMCO does not disagree, but responds that MEMC did not provide objectively reliable evidence that the tests may be used to show what MEMC alleges they show, i.e., that the accused wafers satisfy the claim limitations. In particular, SUMCO argues that Dr. Mule'Stagno cannot show whether a wafer has fewer than 1000 defects per cubic

centimeter—the patentees’ definition of “substantially free of agglomerated intrinsic point defects”—since the detection limit of the test on which he relies is 3300 defects per cubic centimeter. Dr. Mule’Stagno asserted that he reduced the detection limit by looking at multiple views through the microscope, but SUMCO responds that MEMC has not provided verification that this modified methodology is scientifically reliable. SUMCO also challenges Dr. Mule’Stagno’s decision to disregard certain test results as noise or contamination and his assumption, in lieu of actual evidence, that the wafers are axially symmetric.

Under Daubert and Rule 702, expert opinion evidence must be both reliable and relevant to the issue before the trial court. Daubert, 509 U.S. at 594-95. While the various tests carried out by Dr. Mule’Stagno may be commonly used in the industry to examine defects in silicon wafers, the record indicates that the results of those tests cannot prove that all the claim limitations are met. To the extent that Dr. Mule’Stagno varied the standard testing methodology, the record supports the trial court’s conclusion that such modifications rendered the tests unreliable. Although the issue is a close one, under our deferential standard of review we cannot say the trial court abused its discretion in concluding that Dr. Mule’Stagno’s expert report and testimony relating to infringement failed to meet the standards of relevance and reliability required by Rule 702.

2. Non-infringement

In the absence of Dr. Mule’Stagno’s expert report and related declarations, which were properly excluded by the trial court, the evidence relied upon by MEMC is insufficient to create genuine issues of material fact with regard to infringement. MEMC

points to various articles and deposition testimony in which SUMCO employees referred to the company's wafers as "defect-free" or made of "pure silicon." MEMC also cites quality control data from SUMCO allegedly documenting wafers with zero defects. Yet none of this evidence is probative of whether the accused SUMCO wafers are "substantially free of agglomerated vacancy intrinsic point defects" as that phrase was construed by the trial court and defined in the '302 patent, i.e., whether the wafers have fewer than 1000 agglomerated vacancy defects per cubic centimeter. Accordingly, we affirm the trial court's grant of summary judgment of non-infringement in SUMCO's favor.

3. Enablement

The enablement requirement is satisfied if the patent teaches a person skilled in the art at the time the patent application was filed how to make the claimed invention without undue experimentation. In re Wands, 858 F.2d 731, 736-37 (Fed. Cir. 1988). Enablement is a legal conclusion based on underlying factual considerations. Id. at 737. The party alleging invalidity bears the burden of proving by clear and convincing evidence that the claims are invalid for lack of enablement. Johns Hopkins Univ. v. CellPro, Inc., 152 F.3d 1342, 1359 (Fed. Cir. 1998).

The parties' arguments focus on design of the "hot zone," a part of a specially designed furnace known as a crystal puller which is commonly used to produce single crystal silicon. SUMCO submitted to the trial court the declarations of three expert witnesses. They opined that hot zone design is critical to the manufacturing of silicon wafers and requires sophisticated modeling and simulation. In their view, the hot zone description in the '302 patent is too generic to provide the necessary guidance for

designing a hot zone that would produce the claimed silicon wafers without undue experimentation.

MEMC responded with declarations from two of the named inventors of the '302 patent and one from Dr. Mule'Stagno. The inventors explained that the patent sets forth design criteria for controlling three crystal growth parameters. According to the inventors, a person skilled in the art in 1998 when the application was filed would have had the knowledge and ability to modify an existing crystal puller and hot zone using commonly available modeling techniques to achieve the design criteria described in the patent. They noted that, as indicated in the patent, necessary modifications will vary depending on the particular make and model of the crystal puller, and therefore it is the design criteria for controlling the growth parameters that are important rather than a specific hot zone design.

The inventors further stated that, prior to filing their patent application, they made adjustments to an existing hot zone and grew silicon crystal ingots according to the design criteria in the patent. Both the inventors and Dr. Mule'Stagno asserted in their declarations that wafers obtained from those ingots fall within the scope of the patent claims.

The trial court granted summary judgment in SUMCO's favor, concluding that the claims of the '302 patent are invalid for lack of enablement because the patent does not disclose a specific hot zone design, which the court found was essential to producing the claimed silicon wafers. While we appreciate the trial court's effort in analyzing a difficult technical issue, we are unable to agree that summary judgment on the issue of enablement was appropriate. When ruling on SUMCO's motion for summary judgment,

and in determining whether there were genuine issues of material fact requiring trial, the law mandates that the trial court view the evidence in the light most favorable to the nonmoving party, MEMC, and resolve any evidentiary doubts in that party's favor. See Johns Hopkins, 152 F.3d at 1359. In this case, the declarations of the MEMC witnesses create genuine issues of material fact as to whether undue experimentation would be required to design a hot zone to achieve the crystal growth conditions described in the patent and whether such conditions would result in silicon wafers covered by the patent claims.

Moreover, to the extent the trial court failed to consider the declarations of the MEMC witnesses because they were not corroborated by independent evidence, that was error. The MEMC inventors' declarations were not asserted in an attempt to prove an actual reduction to practice for the purpose of establishing priority of invention, in which case corroboration would be required, see Cooper v. Goldfarb, 154 F.3d 1321, 1330 (Fed. Cir. 1998). Rather, evidence that the inventors had practiced the invention was submitted by MEMC in response to SUMCO's argument that the claims were not enabled because the claimed silicon wafers could not be produced without undue experimentation. There is no corroboration requirement for expert testimony asserted to defend *against* an invalidity challenge. See TypeRight Keyboard Corp. v. Microsoft Corp., 374 F.3d 1151, 1159 (Fed. Cir. 2004) ("Corroboration is required of any witness whose testimony alone is asserted *to invalidate a patent.*" (emphasis added)).

For the foregoing reasons, we vacate the trial court's grant of summary judgment of invalidity due to lack of enablement.

4. SUMCO's Cross-Appeal

In its conditional cross-appeal, SUMCO argues that if the trial court's non-infringement judgment is not affirmed, we should vacate the trial court's summary judgment that the patent claims are not invalid for anticipation or obviousness because the trial court applied the same reasoning in both rulings. This cross-appeal is improper. As this court has made clear, "[i]t is only necessary and appropriate to file a cross-appeal when a party seeks to enlarge its own rights under the judgment or to lessen the rights of its adversary under the judgment." Bailey v. Dart Container Corp. of Mich., 292 F.3d 1360, 1362 (Fed. Cir. 2002). Here the trial court entered a judgment of invalidity as to all the asserted claims; the basis for that ruling was lack of enablement. SUMCO's arguments that the claims are anticipated or would have been obvious are simply alternate grounds for affirming the trial court's judgment of invalidity. See TypeRight, 374 F.3d at 1157. We therefore dismiss the cross-appeal for lack of jurisdiction and order that SUMCO's reply brief be stricken from the record.

We treat SUMCO's arguments regarding anticipation and obviousness as arguments in support of the judgment of invalidity on other grounds. However, SUMCO asks us to consider those arguments only if the non-infringement judgment is not affirmed. Because we affirm that judgment, we need not address anticipation and obviousness.

CONCLUSION

The trial court did not abuse its discretion in excluding Dr. Mule'Stagno's expert report and testimony on the issue of infringement, and the trial court's summary judgment of non-infringement is affirmed. The trial court's summary judgment of

invalidity for lack of enablement is vacated. SUMCO's cross-appeal is dismissed. Since the invalidity issues were raised only as affirmative defenses, in view of our affirmance of the district court's non-infringement determination, no remand for further proceedings is necessary. See Cardinal Chem. Co. v. Morton Int'l, Inc., 508 U.S. 83, 93-94 (1993).

COSTS

Each party shall bear its own costs.