

# United States Court of Appeals for the Federal Circuit

01-1054

BOSE CORPORATION,

Plaintiff-Appellee,

v.

JBL, INC. and INFINITY SYSTEMS CORPORATION,

Defendants-Appellants.

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Appealed from: U.S. District Court for the District of Massachusetts

Judge Patti B. Saris

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DECIDED: December 17, 2001

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Before MAYER, Chief Judge, NEWMAN and BRYSON, Circuit Judges.

MAYER, Chief Judge.

JBL, Inc. and Infinity Systems Corporation (collectively “JBL”) appeal the orders and judgments of the United States District Court for the District of Massachusetts: (1) denying JBL’s motion for summary judgment of invalidity of U.S. Patent No. 5,714,721 (“’721 patent”) directed to “Porting,” Bose Corp. v. JBL, Inc., No. 98-10209-PBS (D. Mass. August 14, 2000) (memorandum and order); (2) denying JBL’s motion for summary judgment of non-infringement of the ’721 patent, id.; (3) ordering judgment for Bose and awarding damages, id. (August 31, 2000) (memorandum and order); and (4) entering judgment for Bose in the amount of \$5,676,718.32, id. (September 12, 2000) (judgment).

We affirm.

## Background

Bose is the owner of the '721 patent, relating to porting in a loudspeaker system covering an invention of Brian Gawronski and Gerald Caron, both Bose employees. The '721 patent is a continuation of U.S. Application Serial No. 843,858 (abandoned), which is a continuation-in-part of U.S. Application Serial No. 621,531, that matured into U.S. Patent No. 5,092,424 ("Schreiber patent"). "Porting" pertains to a port tube inside a loudspeaker enclosure used to radiate acoustic energy from inside the loudspeaker enclosure to an area outside the loudspeaker enclosure at high, crisp audible levels. The design of the port tube is critical in avoiding audible distortion. The specific feature at issue here is the shape of the boundary surrounding the port tube.

The '721 patent consists of six claims: independent claim 1 and dependent claims 2-6. Claims 1-3 are most relevant and read as follows:

1. A loudspeaker enclosure with at least one port for radiating acoustic energy to a region outside said enclosure and having an inside volume,  
said at least one port having an axis and characterized by predetermined acoustic mass intercoupling said inside volume and the region outside said enclosure having a smoothly flared input end within said inside volume and a smoothly flared output end adjacent to the region outside said inside volume,  
wherein said port defines a boundary between the acoustic mass therein and said inside volume,  
said boundary being defined by an ellipse having a major diameter.
2. A loudspeaker enclosure in accordance with claim 1 wherein said boundary is defined by the rotation of said ellipse about the axis of said port.
3. A loudspeaker enclosure in accordance with claim 2 wherein the length of said port corresponds to the major diameter of said ellipse.

'721 patent, col. 2, ll. 33-51 (emphasis added).

Bose's application, which matured into the '721 patent contained nine claims as originally filed: independent claim 1 and dependent claims 2-9. Four of these original claims are relevant to the issue before us:

1. A loudspeaker enclosure having an inside volume, and at least one port characterized by predetermined acoustic mass intercoupling said inside volume and the region outside said enclosure having a flared input end within said inside volume and a flared output end adjacent to the region outside said inside volume.
2. A loudspeaker enclosure in accordance with claim 1 wherein said port defines a boundary between the acoustic mass therein and said inside volume, said boundary being defined by an ellipse.
3. A loudspeaker enclosure in accordance with claim 2 wherein said boundary is defined by the rotation of an ellipse about the axis of said port.
4. A loudspeaker enclosure in accordance with claim 3 wherein the length of said port corresponds substantially to the major diameter of said ellipse.

U.S. Application Serial No. 843,858.

Bose brought suit for patent infringement against JBL claiming that its loudspeaker enclosures using the "Linear-A" curve or the "Exponential" curve included the port technology of the '721 patent. JBL asserted non-infringement and the affirmative defense of invalidity. JBL moved for summary judgment of non-infringement, both literal and under the doctrine of equivalents, for speaker models N24, N26, N28, N38, ND310, S26, S38, S312, SCS125, ESC300B, and ESC350. The district court granted JBL summary judgment of non-infringement with respect to literal infringement, but denied its motion for summary judgment under the doctrine of equivalents. After a bench trial, the court entered judgment for Bose and awarded damages of \$5,676,718.32. This appeal followed.

JBL advances three primary arguments on appeal: the district court (1) erred in denying summary judgment of non-infringement under the doctrine of equivalents; (2)

abused its discretion by excluding evidence; and (3) erred in determining the applicable royalty base. We address each in turn.

### Discussion

“We review a district court’s grant of summary judgment de novo.” Vanmoor v. Wal-Mart Stores, Inc., 201 F.3d 1363, 1365, 53 USPQ2d 1377, 1378 (Fed. Cir. 2000) (citing Petrolite Corp. v. Baker Hughes, Inc., 96 F.3d 1423, 1425, 40 USPQ2d 1202, 1203 (Fed. Cir. 1996)). “Summary judgment is appropriate when there is no genuine issue as to any material fact and the moving party is entitled to judgment as a matter of law.” Id. Summary judgment is improper “if the evidence is such that a reasonable jury could return a verdict for the nonmoving party.” Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 248 (1986). When ruling on a motion for summary judgment, all of the nonmovant’s evidence is to be credited, and all justifiable inferences are to be drawn in the nonmovant’s favor. Id. at 255. Prosecution history estoppel is a legal question subject to our de novo review. Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1459-60, 46 USPQ2d 1169, 1177-78 (Fed. Cir. 1998) (en banc).

An accused device that does not literally infringe a claim may still infringe under the doctrine of equivalents if each limitation of the claim is met in the accused device either literally or equivalently. See Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 40 (1997). “Prosecution history estoppel serves to limit the doctrine of equivalents by denying equivalency to a claim limitation whose scope was narrowed during prosecution for reasons related to patentability.” Pioneer Magnetics, Inc. v. Micro Linear Co., 238 F.3d 1341, 1344, 57 USPQ2d 1553, 1555 (Fed. Cir. 2001).

To decide whether a claim amendment gives rise to prosecution history estoppel, a court first must determine what claim limitations are alleged to be met by equivalents, whether the limitations at issue were amended during prosecution, and whether a

patentee's amendment narrowed the literal scope of the claim. Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd., 234 F.3d 558, 586, 56 USPQ2d 1865, 1886 (Fed. Cir. 2000) (en banc), cert. granted, 121 S.Ct. 2519 (2001). “[A] narrowing amendment made for any reason related to the statutory requirements for a patent will give rise to prosecution history estoppel with respect to the amended claim element.” Id. at 566, 56 USPQ2d at 1870.

Bose alleges that the “ellipse having a major diameter” limitation, found in new claim 1 of the '721 patent, can be met by an equivalent and was not narrowed during prosecution. We must review the amendments to original dependent claim 2, which was rewritten as new claim 1 during prosecution, to determine if Bose narrowed the scope of the claim. It is this new claim 1 which contains the “ellipse having a major diameter” limitation here at issue. As originally filed, claim 2 was objected to as being dependent upon a rejected base claim (original claim 1), but would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims. After being rewritten as new claim 1, the examiner required Bose to add the phrase "having a major diameter" to provide an antecedent basis for the reference to the term in issued claim 3 (original claim 4), thereby complying with the definiteness requirement of 35 U.S.C. § 112, ¶ 2. JBL argues that this amendment narrowed the claim limitation, and therefore, no range of equivalents is available.

The section 112 issue raised by JBL, with respect to the “ellipse having a major diameter” claim limitation, is not one of sufficiency of the disclosure, but rather precision of the claim. Issued claim 3 (original claim 4) disclosed the “major diameter of said ellipse,” while new claim 1 recited only “an ellipse.” The Manual of Patent Examining Procedure (“MPEP”) states: “the failure to provide explicit antecedent basis for terms does not always render a claim indefinite. If the scope of a claim would be reasonably ascertainable by

those skilled in the art, then the claim is not indefinite.” MPEP § 2173.05(e) (6th ed. Rev. 1, Sept. 1995); see Ex parte Porter, 25 USPQ2d 1144, 1146 (Bd. Pat. Apps. & Int. 1992); see also In re Moore, 439 F.2d 1232, 1235, 169 USPQ 236, 238 (CCPA 1971) (“[T]he definiteness of the language employed must be analyzed--not in a vacuum, but always in light of the teachings of the prior art and of the particular application disclosure as it would be interpreted by one possessing the ordinary level of skill in the pertinent art.”).

The antecedent basis rejection, as applied to the facts of this case, does not narrow the scope of the claim because it would be reasonably ascertainable by those skilled in the art that an ellipse is inherently understood to have “a major diameter.” There can be no dispute that mathematically an inherent characteristic of an ellipse is a major diameter. The prior recitation of “an ellipse” therefore, provides the antecedent basis for “an ellipse having a major diameter.” “Inherent components of elements recited have antecedent basis in the recitation of the components themselves.” MPEP § 2173.05(e). The MPEP provides an analogous example: “the limitation ‘the outer surface of said sphere’ would not require an antecedent recitation that the sphere have an outer surface.” Id.

Because Bose’s amendment did not satisfy the “narrowing amendment” requirement of Festo, 234 F.3d at 566, 56 USPQ2d at 1870, we see no need to examine the reason why the applicant amended the claim. The district court properly denied the motion for summary judgment of non-infringement under the doctrine of equivalents because a reasonable jury could have returned a verdict for the nonmovant.

Next, JBL argues that the district court abused its discretion by refusing to permit the inclusion of the Dehaeze French patent application (“Dehaeze reference”) during trial. We apply regional circuit law to procedural questions that are not themselves substantive patent law issues so long as they do not: (1) pertain to patent law, Flex-Foot, Inc. v. CRP, Inc., 238 F.3d 1362, 1365, 57 USPQ2d 1635, 1637 (Fed. Cir. 2001) (“[W]e will apply our

own law to both substantive and procedural issues ‘intimately involved in the substance of enforcement of the patent right’” (citation omitted); (2) bear an essential relationship to matters committed to our exclusive control by statute; or (3) clearly implicate the jurisprudential responsibilities of this court in a field within its exclusive jurisdiction, Midwest Indus., Inc. v. Karavan Trailers, Inc., 175 F.3d 1356, 1359, 50 USPQ2d 1672, 1675 (Fed. Cir. 1999) (en banc in relevant part). Because the exclusion of evidence does not meet any of these criteria, we apply the law of the First Circuit.

The First Circuit reviews “the exclusion of evidence for an abuse of discretion.” Achille Bayart & CIE v. Crowe, 238 F.3d 44, 49 (1st Cir. 2001). Additionally, it reviews “a trial court’s Rule 403 balancing for an abuse of discretion, and only in ‘extraordinarily compelling circumstances’ will [it] reverse the district court’s judgment concerning the probative value and unfair effect of the proffered evidence.” United States v. Rosario-Peralta, 199 F.3d 552, 561 (1st Cir. 1999) (citations omitted). That circuit also “afford[s] wide latitude to trial courts in these purlieus, taking care to ‘evaluate the trial court’s decision from its perspective when it had to rule and not [to] indulge in review by hindsight.’” United States v. Winchenbach, 197 F.3d 548, 559 (1st Cir. 1999) (citing Old Chief v. United States, 519 U.S. 172, 182 n.6 (1997)); accord Nat’l Presto Indus., Inc. v. W. Bend Co., 76 F.3d 1185, 1197, 37 USPQ2d 1685, 1694 (Fed. Cir. 1996) (“We review the district court’s evidentiary rulings with extreme deference.”).

JBL sought inclusion of the Dehaeze reference to establish its affirmative defenses of invalidity and non-infringement. It claims that had the district court considered the Dehaeze reference, it would have concluded that the reference rendered the ’721 patent invalid under either 35 U.S.C. § 102 or § 103. Bose argued that it would be unfairly prejudiced by the inclusion of the Dehaeze reference well after the final pre-trial order and on the seventh day of trial.



The district court determined that the Dehaeze reference disclosed a hyperbola, which is different, in both shape and mathematical formula, from an ellipse. The court also observed that it would have weighed the Dehaeze reference differently, in the interest of justice, if it had disclosed an ellipse. Lacking probative value, the court found the disclosure of the Dehaeze reference untimely, noting that the reference could have been discovered earlier with due diligence and to allow it would unfairly prejudice Bose. We see no abuse of discretion.

Finally, while JBL does not appeal the district court's lost profits determination, it argues that the court erred in determining the applicable royalty base because it represents an amount that the parties would never have agreed upon. Specifically, JBL asserts that the royalty was calculated based on the entire value of the loudspeaker systems incorporating the accused ports, even though they only comprised a small component of the system.

A patentee is entitled to no less than a reasonable royalty on an infringer's sales for which the patentee has not established entitlement to lost profits. 35 U.S.C. § 284 (1994). In determining the appropriate basis for calculating a royalty base the court may use the "entire market value rule." Fonar Corp. v. Gen. Elec. Co., 107 F.3d 1543, 1552, 41 USPQ2d 1801, 1808 (Fed. Cir. 1997). "We have held that the entire market value rule permits recovery of damages based on the value of a patentee's entire apparatus containing several features when the patent-related feature is the 'basis for customer demand.'" Rite-Hite Corp. v. Kelley Co., Inc., 56 F.3d 1538, 1549, 35 USPQ2d 1065, 1072-73 (Fed. Cir. 1995) (en banc) (citing State Indus., Inc. v. Mor-Flo Indus., Inc., 883 F.2d 1573, 1580, 12 USPQ2d 1026, 1031 (Fed. Cir. 1989)).

The district court found that the invention of the '721 patent inextricably worked with other components of loudspeakers as a single functioning unit to provide the desired

audible performance. The court also found that the invention of the '721 patent improved the performance of the loudspeakers and contributed substantially to the increased demand for the products in which it was incorporated. Bose presented un rebutted evidence that the invention of the '721 patent was integral to the overall performance of its loudspeakers by way of the elliptical port tube, which eliminated port noise and reproduced improved bass tones. JBL's marketing executive also acknowledged that improved bass performance was a prerequisite for JBL's decision to go forward with manufacturing and selling certain loudspeakers. Bose presented evidence detailing its efforts to market the benefits of its loudspeakers using the invention of the '721 patent and provided testimony on its increase in sales in the year following the introduction of its speakers containing the invention. All of this was substantial evidence to support an award of a reasonable royalty based upon the entire value of the loudspeakers.

We have considered the remainder of JBL's arguments but find none of them persuasive.

#### Conclusion

Accordingly, we affirm the judgment of the United States District Court for the District of Massachusetts.

AFFIRMED