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Briefs and Other Related Documents

Thermalloy, Inc. v. Aavid Engineering, Inc.C.A.Fed.  
(N.H.),1997.

United States Court of Appeals,Federal Circuit.

THERMALLOY, INC., Plaintiff-Appellant,

v.

AAVID ENGINEERING, INC.,

Defendant-Appellee.

No. 96-1307.

Aug. 22, 1997.

Patentee appealed from judgment of the United States District Court of the District of New Hampshire, DiClerico, Chief District Judge, ruling that its patent for a method of manufacturing a heat sink apparatus was invalid. The Court of Appeals, Rader, Circuit Judge, held that patent claim was impermissibly broadened during reexamination, invalidating patent.

Affirmed.

West Headnotes

[1] Patents 291 ↪104

291 Patents

291IV Applications and Proceedings Thereon

291k104 k. Examination and Proceedings on Application in General. Most Cited Cases

New claim added in reexamination proceeding enlarges scope of patent claim if it includes within its scope any subject matter that would not have infringed original patent. 35 U.S.C.A. § 305.

[2] Patents 291 ↪104

291 Patents

291IV Applications and Proceedings Thereon

291k104 k. Examination and Proceedings on Application in General. Most Cited Cases

Whether amendments during reexamination enlarge scope of patent claim is matter of claim construction. 35 U.S.C.A. § 305.

[3] Patents 291 ↪101(1)

291 Patents

291IV Applications and Proceedings Thereon

291k101 Claims

291k101(1) k. In General. Most Cited

Cases

“Claim interpretation” is process of giving proper meaning to patent claim language.

[4] Patents 291 ↪159

291 Patents

291IX Construction and Operation of Letters

Patent

291IX(A) In General

291k159 k. Extrinsic Evidence in General.

Most Cited Cases

Patents 291 ↪165(2)

291 Patents

291IX Construction and Operation of Letters

Patent

291IX(B) Limitation of Claims

291k165 Operation and Effect of Claims

in General

291k165(2) k. Claims as Measure of

Patentee's Rights. Most Cited Cases

Patents 291 ↪168(2.1)

291 Patents

291IX Construction and Operation of Letters

Patent

291IX(B) Limitation of Claims

291k168 Proceedings in Patent Office in

General

291k168(2) Rejection and Amendment

of Claims

291k168(2.1) k. In General. Most

Cited Cases

Language of patent claim frames and ultimately resolves all issues of claim interpretation; in

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determining meaning of disputed claim terms, however, construing court considers written description, prosecution history, and extrinsic evidence.

#### [5] Patents 291 ↪159

291 Patents

291IX Construction and Operation of Letters Patent

291IX(A) In General

291k159 k. Extrinsic Evidence in General.

Most Cited Cases

#### Patents 291 ↪165(1)

291 Patents

291IX Construction and Operation of Letters Patent

291IX(B) Limitation of Claims

291k165 Operation and Effect of Claims in General

291k165(1) k. In General. Most Cited

Cases

#### Patents 291 ↪168(2.1)

291 Patents

291IX Construction and Operation of Letters Patent

291IX(B) Limitation of Claims

291k168 Proceedings in Patent Office in

General

291k168(2) Rejection and Amendment

of Claims

291k168(2.1) k. In General. Most

Cited Cases

Written description, prosecution history, and extrinsic evidence provide context to illuminate meaning of claim terms; nonetheless, throughout claim interpretation process, focus remains on meaning of claim language.

#### [6] Patents 291 ↪104

291 Patents

291IV Applications and Proceedings Thereon

291k104 k. Examination and Proceedings on Application in General. Most Cited Cases

Patent for method of manufacturing heat sink was impermissibly broadened during reexamination, invalidating patent; reexamination claims included within their scope heat sinks with fin-height-to-groove-width ratios of less than six to one, while original claims only covered heat sinks with ratios equal to or greater than six to one. 35 U.S.C.A. § 305.

#### [7] Patents 291 ↪237

291 Patents

291XII Infringement

291XII(A) What Constitutes Infringement

291k233 Patents for Machines or Manufactures

291k237 k. Substitution of Equivalents.

Most Cited Cases

Doctrine of equivalents did not apply in determining whether patent claim was impermissibly broadened during reexamination. 35 U.S.C.A. § 305.

#### Patents 291 ↪328(2)

291 Patents

291XIII Decisions on the Validity, Construction, and Infringement of Particular Patents

291k328 Patents Enumerated

291k328(2) k. Original Utility. Most Cited Cases

4,884,331. Original invalid.

Jack A. Kanz,Harris, Tucker & Hardin, P.C., Dallas, TX, argued for plaintiff-appellant. With him on the brief were William D. Harris, Jr., Michael W. Piper, and Gene C. Vallow. Martin B. Pavane, Cohen, Pontani, Lieberman & Pavane, New York City, argued for defendant-appellee.

Before RICH, RADER, and SCHALL, Circuit Judges.

RADER, Circuit Judge.

The United States District Court for the District of New Hampshire held U.S. Patent No. 4,884,331 (the '331 patent) invalid for violation of 35 U.S.C. § 305 (1994). *Thermalloy, Inc. v. Aavid Eng'g, Inc.*,

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935 F.Supp. 55 (D.N.H.1996). Because all claims of Thermalloy's patent were impermissibly broadened during reexamination, this court affirms.

### I.

Thermalloy, Inc. owns the '331 patent, entitled "Method of Manufacturing Heat Sink Apparatus." Heat sinks conduct heat away \*692 from sensitive electronic components and dissipate the heat into the surrounding air. The rate at which a heat sink dissipates thermal energy depends on its size, shape, and thermal conductivity. In general, a heat sink with a greater surface area provides more efficient heat dissipation. Thus, heat sink technology strives to maximize the surface area of the heat sink in contact with the heat-generating component. This objective usually calls for protrusions connected to the heat-generating component to dissipate the heat. Thinner protrusions, or fins, facilitate more connections and a greater surface area for heat dissipation. Therefore, optimal heat sink design calls for tall, thin fins placed closely together. Indeed, heat sink designers measure the efficiency of the heat sink in terms of the ratio of the height of the fins to the spacing, or width of the groove, between the fins. The greater the ratio, the higher the heat dissipation efficiency.

Tall, thin, densely-packed fins are difficult to manufacture. Before the '331 patent, heat sinks formed through extrusion or stamping could not achieve height-to-spacing ratios in excess of 4 to 1. The '331 patent discloses a method of increasing the ratio by gang sawing the fins to a greater depth after the fins are manufactured to a 4 to 1 ratio. Moreover, gang sawing in a perpendicular direction creates "pin fins." While those in the heat dissipation art knew that pin fins provide superior heat dissipation, the art did not disclose an economically feasible way to manufacture heat sinks with pin fins.

In August 1992, Thermalloy sued Aavid Engineering, Inc. for infringement of the '331 patent. In response, Aavid sought a declaration of patent invalidity based upon two prior art references. Thermalloy then voluntarily submitted the '331

patent for reexamination. In the meantime, the district court stayed the infringement action. After some adjustment to the claim language, the United States Patent and Trademark Office reaffirmed the patentability of the invention over the newly cited prior art. Back before the district court, Aavid moved for summary judgment alleging that Thermalloy had improperly broadened the scope of the '331 patent during reexamination. See 35 U.S.C. § 305. On March 15, 1996, the district court granted Aavid's motion and declared the '331 patent invalid.

### II.

[1] 35 U.S.C. § 305 states, in pertinent part: "No proposed amended or new claim enlarging the scope of a claim of the patent will be permitted in a reexamination proceeding." A new claim enlarges if it includes within its scope any subject matter that would not have infringed the original patent. *Quantum Corp. v. Rodime, PLC*, 65 F.3d 1577, 1580, 36 USPQ2d 1162, 1165 (Fed.Cir.1995) (citing *In re Freeman*, 30 F.3d 1459, 1464, 31 USPQ2d 1444, 1447 (Fed.Cir.1994)), cert. denied, 517 U.S. 1167, 116 S.Ct. 1567, 134 L.Ed.2d 666 (1996). Moreover, in *Quantum*, this court held that a violation of section 305 renders the enlarging claim invalid. 65 F.3d at 1584. Therefore, if the claims of the '331 patent were, in fact, broadened during reexamination, the district court judge properly granted summary judgment of invalidity.

[2][3][4][5] Whether amendments enlarge the scope of a claim is a matter of claim construction. See *Minco, Inc. v. Combustion Eng'g, Inc.*, 95 F.3d 1109, 1115, 40 USPQ2d 1001, 1005 (Fed.Cir.1996). Claim construction, in turn, requires application of the standard of review set forth in *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577, 38 USPQ2d 1461 (1996). Therefore, this court reviews the district court's construction of both the original and reexamined claims to discern any change in claim scope. Claim interpretation is the process of giving proper meaning to the claim language. Claim language, after all, defines claim scope. See *York Prods., Inc. v. Central Tractor Farm & Family Ctr.*, 99 F.3d

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1568, 1572, 40 USPQ2d 1619, 1622 (Fed.Cir.1996); *Bell Communications Research, Inc. v. Vitalink Communications Corp.*, 55 F.3d 615, 619, 34 USPQ2d 1816, 1819 (Fed.Cir.1995) (stating that claim language defines the scope of protection). Therefore, the language of the claim frames and ultimately resolves all issues of claim interpretation. In determining the meaning of disputed claim terms, however, a construing\*693 court considers the written description, the prosecution history, and extrinsic evidence. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979, 34 USPQ2d 1321, 1329 (Fed.Cir.1995) (en banc), *aff'd*, 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996); *Whittaker Corp. v. UNR Indus., Inc.*, 911 F.2d 709, 711, 15 USPQ2d 1742, 1744 (Fed.Cir.1990). These additional sources provide a context to illuminate the meaning of claim terms. *See York Prods.*, 99 F.3d at 1572. Nonetheless, throughout the interpretation process, the focus remains on the meaning of claim language.

Claim 1 of the original '331 patent claimed:

The method of forming a unitary heat sink metal body for use in the removal of heat from a heat generating electronic device package comprising the step of *gang sawing* a first predetermined number of parallel grooves having a first predetermined width and a first predetermined depth into a first surface of metal body of heat conducting material along a first dimension thereof to form a predetermined number of parallel fins of a predetermined height and width, *whereby the ratio of the height of said parallel fins to the width of said parallel grooves is at least six to one* and the width of said fins is no greater than the width of said grooves.

(Emphasis added.) All other claims of the original patent depend from claim 1. Claim 2 of the reexamined '331 patent claims: The method of making a unitary heat sink metal body for use in removal of heat from a heat generating electronic device package comprising the steps of *forming* a first predetermined number of deep parallel grooves having a first predetermined width and depth in a first surface of a metal body of heat conducting material along a first dimension thereof to produce a predetermined number of thin parallel fins of

predetermined height and width unsupported and separated only by said deep grooves wherein the width of said fins is no greater than the width of said deep grooves; and, while said fins are unsupported and separated only by said deep grooves, *gang sawing* a second predetermined number of parallel grooves having a second predetermined depth and a second predetermined width across and through said predetermined number of parallel fins to form pins.

(Emphasis added.). The reexamined patent contains eight new claims, none of which contain the 6 to 1 ratio language of original claim 1.

Aavid argues that two changes during reexamination enlarged the scope of the claims: first, the change in the first step from "gang sawing" to "forming," and second, the removal of the 6 to 1 limitation. The district court held that the "forming" change did not enlarge the scope of the claims, and granted summary judgment based solely on the removal of the 6 to 1 limitation. On appeal, Thermalloy argues that the district court erred in comparing the precise language of the reexamined claims to the precise language of the original claims. Moreover, Thermalloy insists that the test for enlargement requires an infringement analysis, so that the district court erred by refusing to apply the doctrine of equivalents to the original claim.

A.

[6] Beginning with the deleted ratio limitation, the original claim 1 limitation required "a predetermined number of parallel fins of a predetermined height and width, *whereby the ratio of the height of said parallel fins to the width of said parallel grooves is at least six to one* and the width of said fins is no greater than the width of said grooves." (Emphasis added.) The comparable reexamination claim 2 merely requires "a predetermined number of thin parallel fins of predetermined height and width unsupported and separated only by said deep grooves wherein the width of said fins is no greater than the width of said deep grooves." In other words, during reexamination, Thermalloy removed the relevant

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portion of the "whereby" clause from the claim. While the original claim covered only heat sinks with height-to-width ratios of "at least six to one," the reexamined claim carries no such limitation. Therefore, a heat sink with a fin-height-to-groove-width ratio of less than six to one, for instance five to one, \*694 would literally infringe the reexamined claim, but not the original claim.

In *Seattle Box Co. v. Industrial Crating & Packing, Inc.*, 731 F.2d 818, 221 USPQ 568 (Fed.Cir.1984), this court addressed a similar issue. In that case, the patent had originally claimed a spacer block for safe transport of oil pipe that had a "height only 'greater than the diameter of the pipe.'" *Id.* at 821. After seeking reissue, the claim specified a spacer block "of a height substantially equal to or greater than the thickness of the tier of pipe length." *Id.* at 822. After comparing the scope of the original claim with the reissued claim, this court determined: Seattle Box, in broadening its claims' scope to cover not only spacer blocks "greater than" but also "substantially equal to" the diameter of the pipes in a bundle, has, in our view, made substantive change to its claims. The original claims cannot reasonably be read as intending, but for some inaccuracy in their expression, the same coverage as the reissue claims.

*Id.* at 828. Therefore, this appeals court found an enlargement in claim scope.

Likewise, in this case the claim language is not ambiguous. The original claim contains a limitation absent from the reexamined claim. See *Quantum*, 65 F.3d at 1581 (holding that a change in a limitation from "at least 600 [tracks per inch (tpi)]" to "at least approximately 600 tpi" impermissibly broadened the claim). Here, the reexamination claims include within their scope heat sinks with fin-height-to-groove-width ratios of less than six to one, while the original claims only covered heat sinks with ratios equal to or greater than six to one. Thus, Thermalloy enlarged the scope of the reexamination claims. The district court correctly granted summary judgment of invalidity. Finally, because this court upholds the district court's determination on the 6 to 1 limitation, it need not

reach the question of broadening due to the forming/gang-sawing language.

B.

[7] Thermalloy argues that the court in construing the original claims must take into consideration protected equivalents. Thermalloy insists that the district court should have compared the scope of the reexamined claims not only with the literal scope of the original claims, but also with equivalents of the literal language. Under Thermalloy's view, if the reexamined claim is within the "insubstantial difference" shadow cast by the original claim, there can be no violation of section 305. To the contrary, the doctrine of equivalents, while alive and well in the infringement context, has no place in a challenge to validity under section 305.

Contrary to Thermalloy's position, a distinction remains between the language of a claim and an infringement analysis under the doctrine of equivalents. As this court aptly stated in *Wilson Sporting Goods Co. v. David Geoffrey & Assocs.*, 904 F.2d 677, 684, 14 USPQ2d 1942, 1948 (Fed.Cir.1990):

To say that the doctrine of equivalents extends or enlarges the claims is a contradiction in terms. The claims-i.e., the scope of patent protection as defined by the claims-remain the same and application of the doctrine expands the right to exclude to "equivalents" of what is claimed. The doctrine of equivalents, by definition, involves going beyond any permissible interpretation of the claim language; i.e., it involves determining whether the accused product is "equivalent" to what is described by the claim language.

The determination under section 305 of whether the scope of the claim has been enlarged involves no accused product, and therefore the doctrine of equivalents is irrelevant. To hold otherwise would allow a patentee to transform a district court case based on infringement under the doctrine of equivalents into a case based on literal infringement simply by broadening claims during reexamination.

In conclusion, because Thermalloy broadened each

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of its claims during reexamination, the district court properly declared those claims invalid.

#### COSTS

Each party shall bear its own costs.

*AFFIRMED.*

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Briefs and Other Related Documents (Back to top)

- 1997 WL 33539157 (Appellate Brief) (Corrected) Reply Brief for Plaintiff-Appellant Thermalloy, Inc. (Mar. 07, 1997) Original Image of this Document (PDF)
- 1997 WL 33539173 (Appellate Brief) Brief for Defendant-Appellee Aavid Engineering, Inc. (Jan. 03, 1997) Original Image of this Document (PDF)
- 1996 WL 33453158 (Appellate Brief) Brief for Plaintiff-Appellant Thermalloy, Inc. (Oct. 25, 1996) Original Image of this Document with Appendix (PDF)

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