

United States District Court,  
D. New Hampshire.

**THERMALLOY INCORPORATED,**  
v.  
**AAVID ENGINEERING, INC.**

Civil No. 93-16-JD

**March 15, 1996.**

Patentee brought action against competitor, alleging infringement of its patent for a method of manufacturing heat sink apparatus. On competitor's motion for summary judgment, the District Court, DiClerico, Chief Judge, held that: (1) patent was impermissibly broadened during re-examination, rendering it invalid, (2) competitor was not entitled to award of attorney fees.

Motion granted in part and denied in part.

Amended 935 F.Supp. 63.

4,884,331. Invalid.

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***ORDER***

**DiCLERICO, Chief Judge.**

The plaintiff, Thermalloy Incorporated ("Thermalloy"), brings this patent action alleging that the defendant, Aavid Engineering, Inc. ("Aavid"), infringed Letters Patent No. 4,884,331, Method for Manufacturing Heat Sink Apparatus ("the '331 patent"). Before the court is the defendant's motion for summary judgment based on the invalidity of the patent and for attorney fees under 35 U.S.C. s. 285 (document no. 47).

***Background FN1***

FN1. The court's recitation of the facts relevant to the instant motion are either not in dispute or have been alleged by the plaintiff.

Thermalloy is a Nevada corporation with its headquarters in Dallas, Texas. Thermalloy develops, manufactures, and sells thermal management devices for use in electronic equipment. During the mid-1980's Howard Hinshaw, a Thermalloy employee, developed a commercially practical method of manufacturing heat sink devices. The devices dissipate heat using multiple closely or densely spaced pins extending from the base of the device. Hinshaw, with Thermalloy as assignee, filed an application for a letters patent for the method of manufacturing heat sink devices in April 1987.

On December 5, 1989, the United States Patent Office granted Hinshaw Patent No. 4,884,331, Method of Manufacturing Heat Sink Apparatus. Since issuance, Thermalloy has been the sole and exclusive owner of all rights, title, and interest in the patent.

Using the method claimed in the patent, Thermalloy began to manufacture and sell heat sinks with densely spaced pins, commonly known in the industry as "pin fin" heat sinks. Sometime thereafter, Aavid, one of Thermalloy's competitors, also began selling pin fin heat sinks. Thermalloy believed that Aavid was unlawfully using the process described in the '331 patent to make its pin fin heat sinks.

On August 7, 1992, Thermalloy filed a patent infringement complaint in the United States District Court for the Northern District of Texas. Following transfer to this court, Aavid answered the complaint and filed a counterclaim against Thermalloy seeking a declaratory judgment concerning the validity and scope of the claims of the '331 patent and a declaratory judgment that Aavid had not infringed the '331 patent.

In response to a discovery request, Aavid produced two documents which it alleged constituted "prior art" that would render the claims of the '331 patent invalid under 35 U.S.C. s. 102. FN2 Neither document produced by Aavid had been reviewed by the Patent and Trademark Office ("PTO") during its original examination of Hinshaw's application. Because of the newly discovered prior art, Thermalloy requested reexamination of the patent and submitted the publications to the PTO. FN3 The court stayed this action pending the outcome of the reexamination proceeding.

FN2. 35 U.S.C. s. 102 provides, in pertinent part,  
A person shall be entitled to a patent unless-

- (a) the invention was ... patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or
- (b) the invention was patented or described in a printed publication in this or a foreign country ... more than one year prior to the date of application for patent in the United States.

FN3. 35 U.S.C. s. 301 provides, in pertinent part:

Any person at any time may cite to the Office in writing prior art consisting of patents or printed publications which that person believes to have bearing on the patentability of any claim of a particular patent.

In its request for reexamination of the '331 patent, Thermalloy informed the PTO that the patent was the

subject of this infringement action and that Aavid had discovered the two "prior art" references and asserted that they rendered the patent invalid. The Commissioner of Patents determined that the new references raised a "substantial new question of patentability" of the subject matter of the '331 patent within the meaning of 35 U.S.C. s. 303(a) and, in turn, ordered reexamination of the '331 patent as provided by 35 U.S.C. s. 304. Upon reexamination, the patent examiner concluded that "[c]laims 2-4, and 14-21 are patentable over the art of record." Aavid's Memorandum in Support of Summary Judgment, Exhibit E, Reasons for Patentability/Confirmation.

During the reexamination, the patent examiner cancelled claim 1 of the original '331 patent. Claim 1 was the only independent claim of the original patent. The examiner further required that the patentee amend claim 2 to form an independent claim. The patentee also amended claims 3 and 4 to depend properly from the new independent claim 2. The patentee added claims 14-21 during the reexamination proceeding, and these claims were renumbered and appear as claims 5-12 in the reexamination certificate issued by the PTO on May 3, 1994.

The instant motion for summary judgment followed, alleging that Thermalloy impermissibly broadened the claims of the '331 patent during reexamination.

### ***Discussion***

The court may only grant a motion for summary judgment where the "pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue of material fact and that the moving party is entitled to a judgment as a matter of law." Fed.R.Civ.P. 56(c). Summary judgment is appropriate in a patent case where no genuine issue of material fact exists and the movant is entitled to judgment as a matter of law. *See Conroy v. Reebok Int'l, Ltd.*, 14 F.3d 1570, 1575 (Fed.Cir.1994); *Paragon Podiatry Lab., Inc. v. KLM Labs., Inc.*, 984 F.2d 1182, 1190 (Fed.Cir.1993); *Becton Dickinson and Company v. C.R. Bard, Inc.*, 922 F.2d 792, 795 (Fed.Cir.1990); *Barmag Barmer Maschinenfabrik AG v. Murata Machinery, Ltd.*, 731 F.2d 831, 835 (Fed.Cir.1984).

The party seeking summary judgment bears the initial burden of establishing the lack of a genuine issue of material fact. *Celotex Corp. v. Catrett*, 477 U.S. 317, 323, 106 S.Ct. 2548, 2552, 91 L.Ed.2d 265 (1986). However, once the defendant has submitted a properly supported motion for summary judgment, the plaintiff "may not rest upon mere allegation or denials of [the defendant's] pleading, but must set forth specific facts showing that there is a genuine issue for trial." *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 256, 106 S.Ct. 2505, 2514, 91 L.Ed.2d 202 (1986) (citing Fed.R.Civ.P. 56(e)). Where there is no issue of material fact in dispute, the district court may take undisputed evidence into consideration in reaching legal conclusions. *See Barmag Barmer Maschinenfabrik AG*, 731 F.2d at 839. In such situations, "[n]o purpose would be served by a trial since only the correctness of the legal conclusion is being attacked." *Id.*

[1] [2] [3] Patents are presumed valid, and the party asserting invalidity bears the burden of rebutting this presumption, 35 U.S.C.A. s. 282 (West 1984 & Supp.1995), and must do so by clear evidence. *American Hoist & Derrick Co. v. Sowa & Sons*, 725 F.2d 1350, 1360 (Fed.Cir.), *cert. denied*, 469 U.S. 821, 105 S.Ct. 95, 83 L.Ed.2d 41 (1984). The court considers all evidence bearing on the validity of the patent, regardless of whether it was considered by the PTO in issuing the patent. *Id.* Where the patent in suit has been reexamined by the PTO under 35 U.S.C. s.s. 301-307, "the presumption of validity remains unaltered," and the challenger must ultimately prove facts under a clear and convincing standard to support the conclusion that the reexamined patent is invalid. *Kaufman Co., Inc. v. Lantech, Inc.*, 807 F.2d 970, 974 (Fed.Cir.1986).

[4] The central issue before the court is the defendant's claim that the '331 patent is invalid under 35 U.S.C. s. 305. Section 305 provides, in pertinent part, that "[n]o proposed amended or new claim enlarging the scope of a claim of the patent will be permitted in a reexamination proceeding under this chapter." 35 U.S.C.A. s. 305 (West 1984 & Supp.1995). The Federal Circuit recently recognized that a defendant in an infringement action may assert that a violation of 35 U.S.C. s. 305 renders the claims of a patent invalid and, therefore, unenforceable. Quantum Corp. v. Rodime PLC, 65 F.3d 1577, 1584 (Fed.Cir.1995). The determination of whether claims have been enlarged is a matter of claim construction and is treated as a question of law. *Id.* at 1580.

[5] [6] The test to determine if a claim has been impermissibly broadened during reexamination is the same as that used to determine whether a claim has been impermissibly broadened during reissue. *Id.* at 1582 n. 4. An amendment made during reexamination enlarges the scope of the claim if resultant changes are "substantive so that the scope of the claims is no longer substantially identical to the originally issued claims." Quantum Corp. v. Rodime PLC, 851 F.Supp. 1382, 1384 (D.Minn.1994) (citing *Slimfold Mfg. Co. v. Kinkead Indus.*, 810 F.2d 1113 (Fed.Cir.1987)). "An amended or new claim is enlarged if it includes within its scope any subject matter that would not have infringed the original patent." Quantum, 65 F.3d at 1580 (citing *In re Freeman*, 30 F.3d 1459, 1464 (Fed.Cir.1994)).

[7] [8] [9] The court determines which inventions are covered by the claims of a patent. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed.Cir.), *cert. granted* 515 U.S. 1192, 116 S.Ct. 40, 132 L.Ed.2d 921 (1995). When determining the meaning of the disputed claims, the court must consider the claims, the specification, and the prosecution history of the patent. Quantum, 65 F.3d at 1580 (citing *Carroll Touch, Inc. v. Electro Mechanical Sys., Inc.*, 15 F.3d 1573, 1577 (Fed.Cir.1993)). The claim language will be given its ordinary meaning to one of skill in the art unless the inventor "appeared to use [the claim language] differently." *Id.* (citing *Hoganas AB v. Dresser Indus., Inc.*, 9 F.3d 948, 951 (Fed.Cir.1983)).

Aavid asserts that Thermalloy removed critical limitations from the original claims, resulting in reexamination claims that were broader than the original claims of the '331 patent. FN4 The claim changes in question involve (1) the removal of the limitation that the fins are formed so that the ratio of the height of the parallel fins to the width of the parallel grooves is at least six to one, and (2) the forming, rather than the gang sawing, of a predetermined number of parallel grooves of a predetermined height and width.

FN4. Claim 1 of the original patent, which was cancelled during reexamination, claimed:

1. The method of forming a unitary heat sink metal body for use in 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 a 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.

Claim 2 of the reexamined patent claims:

2. 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.

### **1. The Whereby Clauses**

[10] The first disputed claim change is the removal of the limitation of the fin height to groove width ratio which appeared in original claim 1, but did not appear in reexamined claim 2.

[11] [12] In *Texas Instruments v. U.S. Int'l Trade Comm'n*, the Federal Circuit made clear that "[a] whereby clause that merely states the result of the limitations in the claim adds nothing to the patentability or substance of the claim." 988 F.2d 1165, 1172 (Fed.Cir.1993). The court noted that the whereby clauses at issue did not contain any limitations that were not otherwise inherent in the claims. *Id.* The terms of the whereby clause must be regarded as an essential feature of the invention when a whereby clause is used to distinguish the invention over the prior art during prosecution of the patent. *Eltech Sys. v. PPG Indus. Inc.*, 710 F.Supp. 622, 633 (W.D.La.1988), *aff'd* 903 F.2d 805 (Fed.Cir.1990). Terms contained in whereby clauses can evolve into essential features of the invention during the prosecution of the patent and, once essential, they constitute necessary limitations. *See id.* An accused product lacking such an essential feature does not infringe the patent. *Id.* (citing *Aircraftsmen, Inc. v. Aircraft Equip. Co.*, 247 F.Supp. 469, 478 (S.D.Fla.1965), *aff'd* 383 F.2d 988 (5th Cir.1967)).

It is clear from the prosecution history that Hinshaw used the terms of the whereby clause to overcome the prior art. In particular, on page four of his brief to the Board of Patent Appeals and Interferences, Hinshaw asserted that "[t]he claim specifically limits this process to forming parallel grooves and fins *wherein the ratio of height of the fin to the width of the groove is at least six to one.*" Aavid's Memorandum in Support of Summary Judgment, Exhibit I at 4 (emphasis added). Likewise, in an attempt to overcome another prior art reference, Hinshaw asserted that the "pillars" described in the prior art "must meet two further criteria to meet the definition of the [Hinshaw] claim [1]. The pin height to groove width ratio *must be* at least 6:1." *Id.* at 4-5 (emphasis added). Finally, Hinshaw argued at the time that the prior art references cited by the examiner in rejecting the claims of his application do not "suggest making heat sinks with 6:1 fin height to groove width ratios." *Id.* at 10.

Because Hinshaw consistently argued during the prosecution of his patent application that the prior art lacked the six to one height to width ratio, the court finds that when the patent containing the whereby clause ultimately issued, the ratio in the whereby clause was an essential element of the invention. As an essential element, the terms of the whereby clause are interpreted as a limitation on the scope of the patent that was granted. Thus, the scope of original claim 1 must be read to include the six to one fin height to groove width ratio as a necessary limitation.

The scope of the original claim 1 only included heat sinks formed using the claimed process with fin height to groove width ratios *equal to or greater than* six to one. Heat sinks with fin height to groove width ratios of less than six to one were not within the scope of the original claim 1. Significantly, the claims which issued in the reexamination certificate do *not* include any such limitation on the fin height to groove width ratio. That is, the scope of the reexamined claims includes heat sinks with fin height to groove width ratios of *less* than six to one, a class of heat sink specifically disclaimed in the scope of original claim 1. Therefore, the court rules as a matter of law that the undisputed facts demonstrate by clear and convincing evidence that the scope of the reexamined claims is enlarged over the scope of the original patent and that the reexamined patent is invalid under 35 U.S.C. s. 305. FN5

FN5. The six to one fin height to groove width ratio does not appear in any of the claims added during reexamination, claims 5-12, either in independent or dependent form. Thus, as a matter of law claims 5-12 cannot survive the reexamination process and are unenforceable.

Moreover, to the extent that the plaintiff seeks to recover damages for infringement of the '331 patent for the period between the issue date of the original patent and the issue date of the reexamination certificate, recovery is barred because the claims of the original patent and the reexamination patent are not legally identical in scope. That is, because the claims in the reexamination certificate are enlarged over the original patent claims, the patentee has no rights to enforce before the date of reexamination certificate because "the original patent was surrendered and is dead." See Kaufman Co., Inc. v. Lantech, Inc., 807 F.2d at 976; Tennant Co., v. Hako Minuteman, Inc., 878 F.2d 1413, 1417 (Fed.Cir.1989).

## **2. Gang Sawing v. Forming**

[13] The second disputed amendment in the reexamined claims is the addition of a "forming" step. The original claim 1 claimed a method with only the single step of "gang sawing a first predetermined number of parallel grooves having a first predetermined width and a first predetermined depth into the first surface of a heat conducting material along a first dimension thereof." Aavid's Memorandum in Support of Summary Judgment, Exhibit A, Patent for Method of Manufacturing Heat Sink Apparatus. Reexamined claim 2 includes gang sawing a predetermined number of parallel grooves similar to the step in original claim 1 and also includes a predecessor step of forming a predetermined number of parallel grooves. Aavid argues that the addition of the predecessor forming step impermissibly broadens the scope of the claim. Thermalloy responds that the original claim 1 does not distinguish between gang sawing across a flat surface or across parallel grooves and that the initial formation of the parallel grooves was implicit in the original claim 1 and patent specification.

The process of original claim 1 comprises "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 a metal body." The original claim 1 is not limited to parallel grooves that are formed solely by gang sawing, although some portion of the depth of the parallel grooves must be formed by gang sawing. Some portion of the parallel grooves may be formed by some other process, *e.g.*, extrusion, before completing the process by gang sawing the grooves to a predetermined width and depth.

[14] The court reads the claims in light of the specification. *E.g.*, Raytheon v. Roper Corp., 724 F.2d 951, 957 (Fed.Cir.1983) *cert. denied*, 469 U.S. 835, 105 S.Ct. 127, 83 L.Ed.2d 69 (1984); Autogiro Co. of America v. United States, 181 Ct.Cl. 55, 384 F.2d 391, 397 (1967). The specification of the original patent includes several embodiments of the invention disclosed by Hinshaw. In one embodiment the heat sink

apparatus comprises a heat sink body formed by extrusion having a predetermined number of parallel fins which extend outwardly from the heat sink body. These parallel fins have a fin height to groove width ratio of approximately four to one. These fins are then sawed to a second predetermined depth to provide a fin height to groove width ratio of at least six to one. Aavid's Memorandum in Support of Summary Judgment, Exhibit A, Patent for Method of Manufacturing Heat Sink Apparatus. This embodiment plainly involves formation of a first set of parallel fins using extrusion before completing the process by sawing.

The invention of original claim 1, when read in concert with the patent specification, includes pin fin heat sinks in which parallel fins are initially formed by methods other than gang sawing. The court finds that the addition during reexamination of the predecessor step of "forming a first predetermined number of deep parallel grooves" does not result in reexamination claim 2 encompassing any more inventions than encompassed by the original claim 1.

### **3. Doctrine of Equivalents**

[15] Thermalloy also asserts that the scope of the claims of the original '331 patent includes all equivalent inventions under the doctrine of equivalents. Based on this reasoning, Thermalloy concludes that the amendments made during reexamination merely stated the equivalents which would have been within the scope of the original claims.

[16] [17] The doctrine of equivalents cannot be used to enlarge the scope of the claims. *Wilson Sporting Goods v. David Geoffrey & Assoc.*, 904 F.2d 677, 684 (Fed.Cir.), *cert. denied*, 498 U.S. 992, 111 S.Ct. 537, 112 L.Ed.2d 547 (1990). The purpose of the doctrine of equivalents is to "prevent[ ] a copyist from evading patent claims with insubstantial changes." *Valmont Indus., Inc. v. Reinke Mfg. Co. Inc.*, 983 F.2d 1039, 1043 (Fed.Cir.1993). "[A] patentee should not be able to obtain, under the doctrine of equivalents, coverage which he could not lawfully have obtained from the PTO by literal claims." *Wilson Sporting Goods*, 904 F.2d at 684.

[18] [19] The doctrine of equivalents is applicable only where there is an alleged infringing device or process. *Wilson Sporting Goods*, 904 F.2d at 684. It is the existence of an allegedly infringing device or process that allows the court to interpret the claims "beyond any permissible interpretation of the claim language" to achieve a fair and just result. *Id.* "The claims- *i.e.*, the scope of the patent protection *as defined by* the claims-remain the same and application of the doctrine of equivalents *expands the right to exclude* to 'equivalents' of what is claimed." *Id.* (emphasis in original). By definition, the doctrine of equivalents does not involve the expansion of the scope of the claims. *Id.* Moreover, the doctrine of equivalents only expands the right to exclude the equivalents of the patent claim which are actually embodied in an existing device or process. *Id.*

If an allegedly infringing process existed after the '331 patent issued but before the reexamination certificate issued, the doctrine of equivalents could only have expanded the right of the patentee to exclude that particular process and no others. Significantly, the existence of a process found to infringe the original claims of the '331 patent under the doctrine of equivalents would not have expanded the scope of the original claims. Therefore, the court finds that Thermalloy cannot use the doctrine of equivalents to expand the scope of the original claims of the '331 patent to create the appearance that the reexamined claim encompasses the same scope as the original claim.

### **4. Attorney Fees**

[20] [21] [22] [23] [24] Aavid has requested attorney fees under 35 U.S.C. s. 285, which provides that "[t]he court in exceptional cases may award reasonable attorney fees to the prevailing party." An award of attorney fees is within the discretion of the district court. Cambridge Products, Ltd. v. Penn Nutrients, Inc., 962 F.2d 1048, 1050 (Fed.Cir.1992). The party seeking attorney fees must demonstrate by clear and convincing evidence that the nature of the case is "exceptional." *Id.* Exceptional cases where the accused infringer prevails typically arise where the accused infringer can show bad faith or inequitable conduct by the patentee. *Id.* at 1051. Where a party to a litigation shows that the opposing party demonstrated bad faith or intentional misconduct, he may be entitled to attorney fees under 35 U.S.C. s. 285. *Id.*

Aavid has failed to adduce specific evidence to support its contention that Thermalloy breached its duty of good faith in the reexamination proceedings, 37 C.F.R. s. 1.555 (West 1984 & Supp.1995), or otherwise acted in bad faith. Accordingly, the court finds that Aavid has failed to demonstrate by clear and convincing evidence that this is an exceptional case for which attorney fees should be awarded.

### ***Conclusion***

The court finds the '331 patent to be invalid. The defendant's motion for summary judgment (document no. 47) is granted. The defendant's request for attorney fees under 35 U.S.C. s. 285 is denied. This order resolves the dispute pending between the parties. The clerk shall enter final judgment and close this case.

SO ORDERED.

D.N.H.,1996.  
Thermalloy Inc. v. Aavid Engineering, Inc.

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