

850 F.2d 660

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WATER TECHNOLOGIES CORPORATION, Water Pollution Control Systems, Inc., and Kansas State University Research Foundation, Plaintiffs-Appellees,

v.

CALCO, LTD., Defendant-Appellant,
and

William J. Gartner, Defendant.

WATER TECHNOLOGIES CORPORATION, Water Pollution Control Systems, Inc., and Kansas State University Research Foundation, Plaintiffs-Appellees,

v.

William J. GARTNER, Defendant-Appellant,
and

Calco, Ltd., Defendant.

Nos. 87-1204, 87-1205.

United States Court of Appeals,
Federal Circuit.

June 16, 1988.

Michael R. Dinnin, Harness, Dickey & Pierce, Birmingham, Mich., argued for plaintiffs-appellees. With him on the brief was Robert A. Dunn.

Robert E. Wagner, Wallenstein, Wagner, Hattis, Strampel & Aubel, Ltd., Chicago, Ill., argued for defendants-appellants. With him on the brief were Daniel N. Christus and Alan L. Barry.

Before NIES and ARCHER, Circuit Judges, and SKELTON, Senior Circuit Judge.

NIES, Circuit Judge.

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Calco, Ltd. and William J. Gartner appeal from the judgment of the United States District Court for the Northern District of Illinois, 658 F.Supp. 961 (N.D.Ill.1986),1 in favor of Water Technologies Corporation, its wholly owned subsidiary, Water Pollution Control Systems, Inc. (collectively WTC/WPCS), and Kansas State University Research Foundation (KSURF), holding them liable for willful infringement of certain claims of U.S. Patents Nos. 3,817,860; 3,923,665; 4,187,183; and 4,190,529 and for unfair competition. We reverse the district court's judgment to the extent it held Calco and Gartner liable for unfair competition. We vacate the

damage award based on lost profits and remand for redetermination of damages. In all other respects, the judgment is affirmed. Accordingly, we affirm-in-part, reverse-in-part, and remand.

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* BACKGROUND

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This case involves improved bactericidal resins used as disinfectants for purifying water. The plaintiff, WTC/WPCS, developed a drinking cup and other products which use such resins and are useful to campers, backpackers, and travelers. Calco, a competitor in the field, manufactures and sells water purifying drinking straws which also contain bactericidal resins. Gartner is the president of a chemical laboratory which does testing and is the inventor/licensor of a patent for the water purifying straw made by Calco. Gartner also works as a consultant.

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For twenty to thirty years before the developments claimed in the earliest of the patents at issue, scientists had used materials such as halogens (iodine, bromine, or chlorine) to disinfect water. These prior techniques inserted halogen tablets directly into the water. Unfortunately, such techniques left large, residual amounts of the disinfectant in the water, which detracted from the water's taste and, in large applications, such as in swimming pools, risked harm to the eyes and mucous membranes.

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Professors Jack L. Lambert and Louis R. Fina worked to solve that problem at Kansas State University (KSU) during the late 1960's. The professors developed a process able to purify water, rendering it bacterially sterile, by passing the water through a strongly basic anion exchange resin containing triiodide.² The triiodide groups react on demand with bacteria in water suspensions to kill the bacteria. For that reason, the triiodide resins are also called "demand" bactericide resins: the disinfectant resin generally releases iodine only upon contact with bacteria or germs to be killed. Moreover, the process has the advantage of disinfecting without forming a detectable concentration of iodine in the water and the treated water is ready for immediate use.

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Lambert and Fina obtained U.S. Patent No. 3,817,860 (the '860 patent), covering a method of disinfecting water using the demand bactericide resin, on June 18, 1974. On December 2, 1975, they obtained U.S. Patent No. 3,923,665 (the '665 patent) covering the demand bactericide resin itself and the process of preparing that resin. Both patents issued from continuation-in-part applications of an abandoned application, Serial No. 881,923, filed on December 3, 1969. Both patents were assigned to KSURF.

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In 1973, KSURF granted an exclusive license to Aqua-Chem, Inc., under the '860 and '665 patents. Dr. Gary L. Hatch, an employee of Aqua-Chem, then developed two improvement inventions. The improvements covered a demand bactericide resin which still comprised primarily triiodide resin but added thirty to forty percent of the polyiodide pentaiodide, I85. This mixed-form polyhalide resin, composed of both triiodide and pentaiodide ions, elutes reduced levels of iodide ions in water of high salt concentrations (250 ppm sodium chloride or greater). Hatch obtained U.S. Patent No. 4,187,183 (the '183 patent) on February 5, 1980, covering the mixed-form polyhalide resin itself. On February 26, 1980, Hatch obtained U.S. Patent No. 4,190,529 (the '529 patent), covering a method of disinfecting water using that resin. Hatch assigned both patents to Aqua-Chem.

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In September of 1977, Aqua-Chem granted an exclusive license under the then-pending Hatch applications, and an exclusive sublicense under the Lambert-Fina patents, to WTC/WPCS for purifier products containing less than 100 cubic centimeters (cc) of the resins. Operating under the licenses, WTC/WPCS developed, inter alia, its water purifying cup.

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In late 1979, Gartner contacted Aqua-Chem in his capacity as consultant for Brunswick Corporation, a company not involved in this litigation, which he indicated was interested in taking a license from Aqua-Chem to use its resin products in new water purification devices. Through the auspices of Aqua-Chem, Gartner met with the personnel of WTC/WPCS in August of 1979. He received literature at that meeting which described WTC/WPCS's water purifier products using the '665 triiodide resin.

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In July of 1980, Gartner applied for a patent covering a straw-type water purifying device, specifying merely that a triiodide resin could be used therein. On August 28, 1980, Gartner met again with Aqua-Chem. At that time Aqua-Chem gave Gartner its preferred formula and stoichiometric ratio of ingredients on the basis that Gartner would assist Aqua-Chem in licensing products larger than 100 cc in size. This formula was disclosed in Table I of the '183 and '529 patents which had issued in February 1980, but apparently Gartner did not become aware of the patents until September 1980. Gartner gave the patented Aqua-Chem resin formula to Calco in August or September of 1980 in connection with licensing Calco to make Gartner's water purifying straw, a product containing less than 100 cc of resin.

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By September 1980, Calco was also aware of the patents but, with Gartner's assistance, on November 4, 1980, manufactured a first batch of the Hatch triiodide resin which it put into straws marketed under the trademark POCKET PURIFIER owned by Gartner. Gartner tested the

straws, helped Calco obtain EPA approval, and wrote the directions for use of the product by consumers. Calco sold 400-500 units of devices made with the first batch of resin. A few units were also sold or distributed by Gartner.

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During the beginning of 1981, Gartner developed a modified resin formula which ultimately he patented. That formula added a small amount of potassium bromide (the amount of bromine that actually remained in the modified resin was only about 0.5% by weight, 658 F.Supp. at 974) to the patented Hatch resin formula. Gartner added the potassium bromide because he thought this addition might make it "possible to skirt both the KSU and Aqua-Chem patents." at 968. Calco started to work with the new resin on February 23, 1981, and Gartner's laboratory continued to evaluate Calco's products. When this work and evaluation were complete, Calco used the new, modified resin in the POCKET PURIFIER straws which it thereafter marketed.

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WTC/WPCS discovered the POCKET PURIFIER straws on the market in the early Fall of 1981. That discovery prompted WTC/WPCS to ask its licensor, Aqua-Chem, to challenge the accused infringing product. When Aqua-Chem declined, WTC/WPCS withheld royalties from Aqua-Chem and, as exclusive licensee under the patents, filed an action on July 13, 1982, against Calco, Gartner, and Aqua-Chem, charging, inter alia, patent infringement and unfair competition. The action also named Aqua-Chem as involuntary plaintiff.

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Aqua-Chem responded by terminating the exclusive licenses to WTC/WPCS in September of 1982 and by filing cross claims against WTC/WPCS for unpaid royalties under the 1977 license agreement and against Gartner for damages for misappropriation of alleged trade secrets.

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Aqua-Chem and WTC/WPCS settled their cross claims in an agreement signed in May 1985 to which KSURF was a signatory. In accordance with the agreement, Aqua-Chem assigned the '183 and '529 Hatch patents to KSURF and surrendered its license under KSURF's '860 and '665 patents. As the owner of the four patents, KSURF (appellee herein) voluntarily joined WTC/WPCS as plaintiff. In an order dated on or about June 14, 1985, the district court dismissed Aqua-Chem's cross-complaint, specifically "with prejudice."

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In the restructured case, the district court held, inter alia, that Calco (and to a limited extent Gartner) had directly infringed the four patents by making, using, and selling both the first batch resin and the subsequent modified resin, in the POCKET PURIFIER straws; that Gartner induced Calco's infringement; that their infringement was willful; and that Calco and Gartner were liable for unfair competition. These liability judgments formed the basis for the court's award of

damages: \$420,000 for plaintiffs' lost-profits and \$100,000 for loss of marketing opportunities, both amounts being doubled because of the willful nature of defendants' conduct; reasonable attorney fees based on the exceptional nature of the case under 35 U.S.C. Sec. 285 (1982); and prejudgment interest as authorized by 35 U.S.C. Sec. 284 (1982). The district court held Gartner jointly liable with Calco for all damages. Finally, the court enjoined Calco and Gartner from future infringement of the four patents.

II

ISSUES ON APPEAL

Did the trial court err in holding that:

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1. Appellees are not estopped to assert the validity of the patents in suit;

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2. Appellees proved that the Gartner resins and methods of manufacture and use infringe;

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3. Gartner induced infringement;

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4. Appellees proved unfair competition;

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5. Appellees established entitlement to lost profits;

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6. The amount of attorney fees was established.

III

NO ADMISSION OF INVALIDITY

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In this appeal, Calco and Gartner do not challenge the validity of the four patents on the basis of 35 U.S.C. Secs. 102 or 103 (1982). Instead, they contend solely that WTC/WPCS and KSURF have admitted invalidity. In the early stage of proceedings, before Aqua-Chem was dismissed

from the lawsuit, WTC/WPCS pleaded as a defense to Aqua-Chem's claim for royalties that the four patents were invalid. In addition, WTC/WPCS asserted the invalidity of the '183 and '539 patents in an answer to an interrogatory propounded by Aqua-Chem. Calco and Gartner assert that they are entitled to the benefit of the pleading and answer as an "admission" that the patents are invalid. Thus, appellants theorize, WTC/WPCS is estopped to assert the validity of the patents against it. The district court gave short shrift to that argument, and so do we.³

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A pleading may constitute an admission. *Enquip, Inc. v. Smith-McDonald Corp.*, 655 F.2d 115, 118 (7th Cir.1981); *McCormick on Evidence* Sec. 265, at 780 (E. Cleary ed. 1984). Even as between WTC/WPCS and Aqua-Chem, however, WTC/WPCS was entitled to plead inconsistently in alternative defenses. Fed.R.Civ.P. 8(e)(2) ("A party may also state as many separate claims or defenses as he has regardless of consistency"); *Douglas Equip., Inc. v. Mack Trucks, Inc.*, 471 F.2d 222, 224 (7th Cir.1972) ("The evidentiary law of Illinois also recognizes the foregoing [inconsistent pleadings are not admissions] approach" ... and the pleader "is not 'admitting' anything other than his uncertainty.'").

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More significantly, whether judicial estoppel should be invoked to preclude WTC/WPCS from taking a position inconsistent with its earlier pleading or interrogatory answer depends upon WTC/WPCS having received a benefit from the previously taken position in the form of judicial success.⁴ See *Jackson Jordan, Inc. v. Plasser Am. Corp.*, 747 F.2d 1567, 1579, 224 USPQ 1, 10 (Fed.Cir.1984) ("In all precedent cited to us and which we have researched independently, the party against whom estoppel is invoked received some benefit from the previously taken position, i.e., he 'won' because of it"); *Edwards v. Aetna Life Ins. Co.*, 690 F.2d 595, 599 (6th Cir.1982) ("If the initial proceeding results in settlement, the position cannot be viewed as having been successfully asserted" and estoppel is inapplicable); *Konstantinidis v. Chen*, 626 F.2d 933, 939 (D.C.Cir.1980) ("A settlement neither requires nor implies any judicial endorsement of either party's claims or theories, and thus a settlement does not provide the prior success necessary for judicial estoppel."). Because there has been no judicial acceptance of the asserted inconsistent position (WTC/WPCS stated its initial position in prior proceedings which were settled, not decided), there is no risk of inconsistent results, no effect on the integrity of the judicial process, and no perception that the court has been misled. Accordingly, we agree with the district court that a holding of judicial estoppel is unwarranted.

IV

DIRECT INFRINGEMENT

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Calco does not challenge that it is liable for infringement with respect to the manufacture and use of the batch of resin manufactured on November 4, 1980 and the sale of products containing that resin.⁵ With respect to the Gartner resin, Calco makes two arguments against the court's finding

of infringement: 6 first, that the claims of the Lambert-Fina '665 and '860 patents exclude the Gartner resins because the accused resins contain penta iodide and, second, that, in any event, plaintiffs did not prove the exact composition of the accused resins and thus did not establish infringement under any of the patents.

A. Accused Resin's Penta iodide Content

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Calco argues that the Gartner resins contain a higher polyiodide, penta iodide, which precludes a finding that they infringe properly interpreted claims of the Lambert-Fina ('860 and '665) patents.

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Calco does not assert that the claims at issue do not, given their ordinary meaning, read on the Gartner resin which contains both triiodide and penta iodide. Although the claims specify only triiodide, they are written using the open-ended phrase "comprising" or in the '860 patent the more limited phrase "consisting essentially of." The latter does not, however, exclude the addition of another ingredient which does not materially affect the characteristics of the invention. See, e.g., *Reese v. Hurst*, 661 F.2d 1222, 1229, 211 USPQ 936, 943 (CCPA 1981); *In re Garnero*, 412 F.2d 276, 279, 162 USPQ 221, 223 (CCPA 1969). Calco asserts that the claims here should, nevertheless, be limited to triiodide only in all claims and exclude all forms of polyiodides above triiodide. Calco bases this argument on the following evidence: 1) statements made during prosecution of the Lambert-Fina patents; 2) statements made by Aqua-Chem during prosecution of the two Hatch patents; and 3) correspondence between KSURF and Aqua-Chem.

1. The Lambert-Fina Prosecution History

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After the examiner initially rejected the parent application (Serial No. 881,923) which later issued as the two Lambert-Fina patents, the applicants deleted general references to polyhalide ions and stated that "the only polyiodide or other polyhalide usable in the present invention is the triiodide." Calco asserts that such amendments strictly limit the ultimately issued patents to triiodide-containing resins. In construing claims, the patent specification and the prosecution history are both useful tools. *SRI Int'l v. Matsushita Elec. Corp.*, 775 F.2d 1107, 1118, 227 USPQ 577, 583 (Fed.Cir.1985). The parent application stated that "[h]igher polyiodide ions can be used, but no particular advantage has been found." Viewing the later amendments in light of this statement, the limiting effect of the prosecution history amendments is small. *Hughes Aircraft Co. v. United States*, 717 F.2d 1351, 1363, 219 USPQ 473, 481 (Fed.Cir.1983) ("Depending on the nature and purpose of an amendment, it may have a limiting effect within a spectrum ranging from great to small to zero."). The '860 patent specification still states that "some of the higher polyiodide ions may be formed and special steps may be necessary to remove the excess iodine from the resin." Thus, the specification and prosecution history do not require the strict interpretation of the claims urged by Calco.

2. The Hatch Patents' Prosecution History

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Several years after the Lambert-Fina patents issued, a different attorney, representing Aqua-Chem as assignee, prosecuted the two Hatch patents. During that prosecution, in order to obtain allowance, the attorney argued that the Lambert-Fina patents (prior art to the Hatch applications) were limited to triiodide-containing resins. We must construe claims "in the light of the claim language, the other claims, the prior art, the prosecution history, and the specification." SRI Int'l, 775 F.2d at 1118, 227 USPQ at 583 (emphasis added). We see no reason why arguments made by a different attorney prosecuting later patent applications for a different inventor should be used to limit an earlier-issued patent; Calco has offered none. Consequently, the second ground for Calco's argument to limit the scope of the Lambert-Fina claims fails.

3. The Honstead Letter

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Finally, a letter from William Honstead, Executive Vice President of KSURF, advised Aqua-Chem that KSURF's patent attorney believed resins containing higher polyiodides, such as pentaiodide, were outside the scope of the license agreement covering the Lambert-Fina patents. That letter indicates, Calco states, that the original owner of the Lambert-Fina patents (KSURF) acknowledged those patents as limited to triiodide-containing resins. Calco urges this court to estop or preclude KSURF from contending otherwise. There is no assertion that Calco relied on this letter to justify its activities, and we refuse to accord preclusion effect to a hearsay statement asserted during negotiations over a dispute concerning the scope of a license with a third party.

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The scope of a claim is a matter of law. *McGill, Inc. v. John Zink Co.*, 736 F.2d 666, 671, 221 USPQ 944, 948 (Fed.Cir.), cert. denied, 469 U.S. 1037, 105 S.Ct. 514, 83 L.Ed.2d 404 (1984). We agree with the district court's interpretation of the Lambert-Fina claims: they are not limited to a triiodide-containing resin alone.

B. Quantitative Testing was not Necessary

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Calco argues that plaintiffs failed to prove that the Gartner resin infringed any of the four patents because of the absence of quantitative testing, e.g., by spectroscopy, to determine the exact composition of that product.

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The court relied on the testimony of WTC/WPCS's experts, who testified that the accused resin and method of use and manufacture did infringe the subject patent claims. Calco points to a

purported conflict in that testimony with respect to the quantity of pentaiodide in the Gartner resin and characterizes plaintiffs' proof as in "hopeless conflict." It must be noted that Calco offered little, if any, evidence to counter the plaintiffs' experts. But, in any event, we do not discern the "hopeless conflict" in the entirety of the witnesses' testimony. One referred to the quantity of pentaiodide as "small"; another as "30%." No effort was made to quantify what the witness meant by "small." This is too slender a reed to overturn the trial court's finding of infringement as clearly erroneous.

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This court has often stated that the question of infringement of properly interpreted claims is one of fact. See, e.g., SRI Int'l, 775 F.2d at 1125, 227 USPQ at 589. We review such questions under the clearly erroneous standard. Fed.R.Civ.P. 52(a); Thomas & Betts Corp. v. Litton Sys., Inc., 720 F.2d 1572, 1579, 220 USPQ 1, 6 (Fed.Cir.1983). Having addressed each of Calco's arguments on appeal, we are not left with the firm conviction that the district court's finding of literal infringement is wrong. Thus, it is not clearly erroneous.

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Calco does not raise the issue of the willful nature of the infringement on appeal, and, accordingly, we need not address that issue.

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Gartner asserts that except for his de minimis distribution, the ground for holding him liable for direct infringement is that his company tested the infringing products for Calco and that he is not individually liable for those acts. We need not address the issue of his direct infringement because, as discussed infra, we affirm the finding that he induced Calco's direct infringement and direct infringement by the public.⁷ See 5 D. Chisum, Patents Sec. 20.03[b][iv], at 20-247 (1984) (appropriate relief against one inducing infringement may be same as that against direct infringer); cf. Aro Mfg. Co. v. Convertible Top Replacement Co., 377 U.S. 476, 500, 84 S.Ct. 1526, 1539, 12 L.Ed.2d 457 (1964) (contributory infringer a "species of joint-tortfeasor, who is held liable because he has contributed with another to the causing of a single harm to the plaintiff").

V

INDUCEMENT OF INFRINGEMENT

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The patent statute provides that "[w]hoever actively induces infringement of a patent shall be liable as an infringer." 35 U.S.C. Sec. 271(b) (1982). Thus, a person infringes by actively and knowingly aiding and abetting another's direct infringement. Although section 271(b) does not use the word "knowing," the case law and legislative history uniformly assert such a requirement. 4 D. Chisum, supra, Secs. 17.04, (and cases cited therein).

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Gartner argues that no proof of a specific, knowing intent to induce infringement exists. While proof of intent is necessary, direct evidence is not required; rather, circumstantial evidence may suffice. *Moleculon Research Corp. v. CBS, Inc.*, 793 F.2d 1261, 1272, 229 USPQ 805, 813 (Fed.Cir.1986), cert. denied, --- U.S. ----, 107 S.Ct. 875, 93 L.Ed.2d 829 (1987).

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Gartner maintains that he was unaware of Calco's sales of straws using the original batch of resin and that this lack of knowledge precludes a finding of intent to induce infringement in those sales. With respect to straws made using his modified resin, Gartner asserts that a finding of intent is negated by his subjective belief that he had a noninfringing resin. As evidence of this belief he points to a letter he wrote to Brunswick, see Letter from William J. Gartner to Fred Konigsdorffer of Brunswick Corp. (Oct. 16, 1980) (indicating that by adding bromine he might "skirt" the patents), and to his filing of a patent application for an improved resin modified with bromine.

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In finding inducement the court relied, inter alia, on Gartner's having given all of the resin formulas to Calco, helped Calco make the infringing resins, and prepared consumer use instructions. We also note that Gartner exerted control over Calco's manufacture of the infringing resins, as the owner of the trademark POCKET PURIFIER used by Calco on its product and through license agreements. See Amendment to Agreement between William J. Gartner and Calco Ltd. of Sept. 24, 1980, at 2 (Jan. 26, 1983) ("GARTNER grants to CALCO an exclusive license to manufacture and sell the purifying straw, the construction of which shall have been approved by Gartner "). Such control is also evidence that Gartner induced infringement. Cf. 4 D. Chisum, supra, Sec. 17.04[d], at 17-52 (design of infringing product may constitute active inducement).

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Contrary to Gartner's assertions, his letter to Brunswick and his application are not such clear evidence of lack of intent that the district court could not make a contrary finding on the basis of other circumstantial evidence. See, e.g., *Allen Organ Co. v. Kimball Int'l, Inc.*, 839 F.2d 1556, 1567, 5 USPQ2d 1769, 1778 (Fed.Cir.1988) ("Intent is a factual determination particularly within the province of the trier of fact."). The court found that Gartner had no way of knowing (e.g., by an opinion of counsel) whether his "improvement" avoided infringement. At 968. Further, it is elementary patent law that a patent may issue on an improvement which infringes another's patent. See, e.g., *Atlas Powder Co. v. E.I. DuPont de Nemours*, 750 F.2d 1569, 1580-81, 224 USPQ 409, 417 (Fed.Cir.1984).

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The requisite intent to induce infringement may be inferred from all of the circumstances. Gartner's activities provide sufficient circumstantial evidence for this court to affirm the district court's finding that he intentionally induced Calco's and the public's direct infringement. Under the facts here, although Gartner's liability as a direct infringer may be de minimis, we see no reason to hold him liable for less than all damages attributable to Calco's infringing sales on the basis of his inducement of direct infringement.

VI

UNFAIR COMPETITION

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Under 28 U.S.C. Sec. 1338(b) (1982), a state or federal claim of unfair competition may be appended to a related claim of patent infringement. Specifically, section 1338(b) provides:

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(b) The district courts shall have original jurisdiction of any civil action asserting a claim of unfair competition when joined with a substantial and related claim under the copyright, patent, plant variety protection or trade-mark laws.

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WTC/WPCS pleaded, in a mixed "Patent Infringement and Unfair Competition" count asserted against both Calco and Aqua-Chem (then WTC/WPCS's licensor and an adverse party), that Calco was infringing the patents; that neither Aqua-Chem nor Calco had "taken steps to prevent or stop the infringement"; that "the appearance of Calco's product on the market" brought WTC/WPCS's negotiations directed to mass marketing of its product to a halt; and that "major corporations now assume that biocidal products are not unique." During the argument before this court, WTC/WPCS disclaimed any state law unfair competition claim, resting solely on "the federal law of unfair competition" which it asserts is provided in section 1338(b).

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WTC/WPCS's position that section 1338(b) itself can serve as the basis for an unfair competition claim is legally untenable. Section 1338(b) is a jurisdictional statute, giving the district court jurisdiction to hear certain state or federal unfair competition claims. That statute does not create the substantive right underlying the claim.

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WTC/WPCS's reliance on *Schreyer v. Casco Products Corp.*, 190 F.2d 921, 90 USPQ 271 (2d Cir.1951), aff'g 89 F.Supp. 177, 84 USPQ 315 (D.Conn.1950) (denying motion to dismiss cause of action for unfair competition), and aff'g in part, rev'g in part 97 F.Supp. 159, 88 USPQ 515 (D.Conn.1951) (deciding merits), cert. denied, 342 U.S. 913, 72 S.Ct. 360, 96 L.Ed. 683 (1952),

as authority for holding that section 1338(b) provides for a federal claim against unfair competition is misplaced. Contrary to WTC/WPCS's understanding, the Schreyer case involved a "non-federal claim" of unfair competition. 89 F.Supp. at 178, 84 USPQ at 315. The particular state law was not analyzed inasmuch as the issue before the court was whether any state law claim of unfair competition could be appended to a patent infringement claim where there was no diversity in citizenship. The Second Circuit held that section 1338(b) gave jurisdiction to the district court over the non-federal unfair competition claim because the only requirement of section 1338(b) was that such claim be "related" to the patent claim. The Second Circuit did not hold that section 1338(b) creates a federal unfair competition cause of action. It simply construed the scope of federal court jurisdiction granted therein.

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In *United States v. Testan*, 424 U.S. 392, 96 S.Ct. 948, 47 L.Ed.2d 114 (1976), an argument identical to that made by WTC/WPCS here was made in connection with the Tucker Act, 28 U.S.C. Sec. 1491(a) (1982). The Tucker Act provides that the "Claims Court shall have jurisdiction to render judgment upon any claim against the United States ... for ... damages in cases not sounding in tort." In *Testan*, the Supreme Court held:

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The Tucker Act, of course, is itself only a jurisdictional statute; it does not create any substantive right enforceable against the United States for money damages. The Court of Claims has recognized that the Act merely confers jurisdiction upon it whenever the substantive right exists. *Eastport S.S. Corp. v. United States*, 178 Ct.Cl. 599, 605-607, 372 F.2d 1002, 1007-1009 (1967). We therefore must determine whether the two other federal statutes that are invoked by the respondents confer a substantive right to recover money damages from the United States....

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424 U.S. at 398, 96 S.Ct. at 953.

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Like a litigant under the Tucker Act, a litigant pleading a claim under 28 U.S.C. Sec. 1338(b) must find its substantive rights elsewhere. Because there is no federal common law of unfair competition, see *Erie R.R. Co. v. Tompkins*, 304 U.S. 64, 78-79, 58 S.Ct. 817, 822, 82 L.Ed. 1188 (1938) ("There is no federal general common law"), to assert a federal claim, WTC/WPCS's claim would have to rest on a federal statute which defines and provides relief for this type of tort. Not only is no federal statute other than 28 U.S.C. Sec. 1338(b) invoked here, but also there is none which provides broadly for protection against unfair competition.⁸ WTC/WPCS's claim could rest, therefore, only on the law of unfair competition of a particular state. Cf. *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 94 S.Ct. 1879, 40 L.Ed.2d 315 (1974) (Ohio trade secret law not pre-empted by federal patent laws).

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When we look to the district court's analysis, we cannot tell under what law the trial court found unfair competition because that court also mentioned only 28 U.S.C. Sec. 1338 and the Schreyer decision. On the merits, the trial court invoked many of the factual allegations relating to Aqua-Chem's state trade secret claim against Gartner and Calco but without finding that any trade secret was misappropriated. Specifically, the court found that Gartner misappropriated "technical information" from Aqua-Chem, namely, Aqua-Chem's preferred resin formula, in that on August 28, 1980, he obtained the formula from Aqua-Chem; that he took the formula to Calco in connection with his licensing Calco to make his purifying drinking straw; and that he assisted Calco in commercializing that product. On the other hand, the court further found that the Aqua-Chem formula had been described in Table I of the Aqua-Chem/Hatch '183 and '529 patents. Those patents issued, as has been noted, on February 19, 1980, a date before Gartner's disclosure to Calco, so that the information "misappropriated" could not possibly be a trade secret. See, e.g., *Sandlin v. Johnson*, 141 F.2d 660, 661, 61 USPQ 71, 72 (8th Cir.1944); 2 R. Callmann, *The Law of Unfair Competition Trademarks & Monopolies* Sec. 14.07, at 36 (4th ed. 1982).

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We need not explore the possibility that those facts might support some kind of unfair competition theory under the law of Illinois, where the case was tried, or that of any other state. The factual underpinnings pertain only to a possible claim by Aqua-Chem, not WTC/WPCS. Upon withdrawal from the litigation, Aqua-Chem suffered dismissal of its unfair competition claim "with prejudice." It has not been explained how Aqua-Chem's claim could have survived or how WTC/WPCS is entitled to assert it in any event. Not only does the set of facts, at best, allege a claim personal to Aqua-Chem, but also that claim became barred by the judgment. See *Young Eng'rs, Inc. v. United States Int'l Trade Comm'n*, 721 F.2d 1305, 1314, 219 USPQ 1142, 1150-51 (Fed.Cir.1983); *Restatement (Second) of Judgments* Secs. 13, 19, 24 (1982).

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We must agree with Calco and Gartner, therefore, that the district court erred in holding them liable to WTC/WPCS for unfair competition. The only claim established by appellees against appellants is patent infringement under 35 U.S.C. Secs. 271(a) and (b) (1982). Although a distinct cause of action for unfair competition may arise in a factual context which also gives rise to a patent infringement claim,⁹ the facts here do not establish a claim by WTC/WPCS distinct from its patent infringement claim, which in itself is not a state unfair competition claim. Accordingly, we reverse the district court on this issue and remand with instructions to vacate the judgment to the extent that it upholds WTC/WPCS's unfair competition claim and includes an award of damages thereon.

VII

DAMAGES

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The district court awarded damages for patent infringement under 35 U.S.C. Sec. 284 (1982) on the following basis:

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Damages are governed by 35 U.S.C. Secs. 284-289. The plaintiffs seek lost profits as damages in this case, and the infringers' profits may be used to estimate plaintiffs' lost profits. *Kori Corp. v. Wilco Marsh Buggies*, [761 F.2d 649] 225 U.S.P.Q. 985, 987-89 (Fed.Cir.1985).

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658 F.Supp. at 978. Calco and Gartner seek a redetermination of damages, contending that WTC/WPCS failed to meet its burden of proving entitlement to lost profits. We agree that a remand is necessary.

59

Pursuant to section 284, WTC/WPCS is entitled to damages "adequate to compensate" for Calco's and Gartner's infringement. To be entitled to damages beyond a reasonable or established royalty, a claimant must prove his actual damages, that is, his entitlement to lost profits. As Professor Chisum has stated:

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A patent owner may recover as a measure of damages the lost profits caused by the illicit competition of an infringer. The owner must establish a factual basis for causation, i.e. that but for the infringer's improper acts, he would have made greater sales, charged higher prices or incurred lower expenses. Causation need be proved only as a reasonable probability. An inference that the patent owner lost sales equal in quantity to those actually made by the infringer may arise if the two were the only suppliers of a unique and demanded product and the owner had or could have acquired the capacity to meet the full demand.

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5 D. Chisum, *supra*, Sec. 20.03, at 20-72. Our precedent is in agreement that a lost profits award is appropriate only if WTC/WPCS proved that it would have made sales of its water purifier product "but for" Calco's and Gartner's infringement, i.e., that causation existed. *King Instrument Corp. v. Otari Corp.*, 767 F.2d 853, 864, 226 USPQ 402, 410 (Fed.Cir.1985), cert. denied, 475 U.S. 1016, 106 S.Ct. 1197, 89 L.Ed.2d 312 (1986); *Kori Corp. v. Wilco Marsh Buggies & Draglines, Inc.*, 761 F.2d 649, 653, 225 USPQ 985, 987 (Fed.Cir.), cert. denied, 474 U.S. 902, 106 S.Ct. 230, 88 L.Ed.2d 229 (1985).

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While damages are to be proved, not presumed, a patent owner need not demonstrate causation with certainty. A reasonable probability that the patent owner would have made some or all of

the sales is sufficient. See, e.g., *King Instrument*, 767 F.2d at 864, 226 USPQ at 409-10. Where a patent owner maintains that it lost sales equal in quantity to the infringing sales, our precedent has approved generally the four-part test set forth in *Panduit Corp. v. Stahl Brothers Fibre Works, Inc.*, 575 F.2d 1152, 197 USPQ 726 (6th Cir.1978):

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To obtain as damages the profits on sales he would have made absent the infringement, i.e., the sales made by the infringer, a patent owner must prove: (1) demand for the patented product, (2) absence of acceptable noninfringing substitutes, (3) his manufacturing and marketing capability to exploit the demand, and (4) the amount of the profit he would have made.

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Id. at 1156, 197 USPQ at 729-30 (cited with approval in *Carella v. Starlight Archery & Pro Line Co.*, 804 F.2d 135, 141, 231 USPQ 644, 648 (Fed.Cir.1986), and *King Instrument*, 767 F.2d at 864 n. 9, 226 USPQ at 409 n. 9). The Panduit test in part (2) embodies the idea stated in other precedent that lost profits for all sales made by an infringer are easier to obtain where there are only two suppliers in the market, the infringer and the patent owner. *Kori*, 761 F.2d at 653, 225 USPQ at 987 ("when the parties involved in an action are the only suppliers in the market, lost profits are a particularly appropriate measure of damages"); *Lam, Inc. v. Johns-Manville Corp.*, 718 F.2d 1056, 1065, 219 USPQ 670, 675 (Fed.Cir.1983) (when patent owner and infringer are the only suppliers of the product, causation may be inferred); 5 D. Chisum, *supra*, Sec. 20.03, at 20-72.

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Calco asserts that WTC/WPCS provided no evidence of causation, i.e., that WTC/WPCS would have made Calco's sales. We agree. Noticeably absent from the court's opinion is any factual finding or findings that WTC/WPCS would have made the sales made by Calco but for Calco's infringement. The court simply stated that WTC/WPCS sought lost profits and that, under *Kori*, the infringer's profits could be used to estimate a patent owner's lost profits. The court skipped the entitlement issue completely and went directly to the issue of quantum. On reconsideration at Calco's and *Gartner's* request, the court added only that the activities of the defendants caused the "breakup" of plaintiffs' exclusive licensing agreement, but gave no explanation as to how that establishes causation.

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It appears that the court misinterpreted the precedent of our *Kori* decision in several respects. *Kori* is not authority for awarding a patentee's lost profits on the basis of a patent owner's "request," that is, without proof of entitlement. *Kori* held:

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When a patent holder would have made the sale of a product "but for" the infringement, the award of his lost profits is proper. Paper Converting Machine Co. v. Magna Graphics Corp., 745 F.2d 11, 21, 223 USPQ 591, 598 (Fed.Cir. 2984); Bio-Rad [Labs, Inc. v. Nicolet Instrument Corp.,] 739 F.2d at 616, 222 USPQ at 663....

68

The district court found that Kori would have sold or rented the machines built by Wilco were it not for Wilco's infringement. Although Wilco argued that there were non-infringing substitutes available, the district court's conclusion was based on findings that Wilco "directly competed" for the sale of these machines with Kori, and that "from a buyer's perspective, the only acceptable substitute for the patented Kori machines were the infringing machines." 561 F.Supp. at 526, 217 USPQ at 1306. The court therefore properly awarded damages based on Kori's lost profits for the infringing sales and rentals of Wilco's machines.

69

Kori, 761 F.2d at 653, 225 USPQ at 987. Only after the patent owner established that it would likely have made all of the sales and rentals made by the infringer did the Kori court address the issue of quantum and the relevance of the infringer's profits in determining quantum.

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That the district court here misunderstood the basic theory for award of lost profits, that is, that the patentee would likely have made the infringing sales, is confirmed by its award of lost profits for the entire amount of the infringing sales from 1980 through the trial. Neither plaintiff was in a position over that entire time period to sell the resins or resin products. KSURF has no facilities to manufacture the resin commercially and, thus, had never made any sales and had no basis for claiming that it would have made the sales Calco made but for Calco's infringement. WTC/WPCS got out of the business in August 1982, its license having been revoked for non-payment of royalties. To the extent the court awarded plaintiffs' lost profits after August 1982, the court clearly erred as a matter of law. Lost profits could be awarded, at most, for the period during which WTC/WPCS was a licensee and an actual competitor of Calco in the marketplace.

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The district court may also have misunderstood that, unlike copyright and trademark infringements, patent infringement carries no remedy of an accounting for an infringer's profits. That remedy was eliminated by the 1946 amendment of the patent statute and, thus, the infringer's profits are not, as such, a measure of the patent owner's damages. See Kori, 761 F.2d at 654, 225 USPQ at 987-88. In fact, in Kori, the infringer's profit margin was used for comparison purposes with the profit margin figure of the patent owner to determine the reasonableness of the latter figure. The Kori court stated:

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However, evidence of an infringer's profits may be relevant to the amount of patentee's damages in certain circumstances. Here, where the patentee can establish that he would have made the sales of the patented products, but for the fact that the infringer made them, the infringer's profits were properly looked at for comparison purposes with the patentee's proof of his lost profits.

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Kori, 761 F.2d at 655, 225 USPQ at 988 (emphasis added).

74

WTC/WPCS counters that, despite the absence of findings by the court, we should approve the damage award because evidence in the record shows causation. More particularly, WTC/WPCS asserts that Aqua-Chem exclusively licensed WTC/WPCS for water purifying products having a resin size of 100 cc or less, that Calco's infringement caused WTC/WPCS to lose its exclusive license position, and that Calco's straw purifier was "very similar" to WTC/WPCS's cup purifier. From these facts WTC/WPCS asks this court to infer causation on the theory that a two-supplier market existed here. *Lam, Inc.*, 718 F.2d at 1065, 219 USPQ at 675.

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As WTC/WPCS concedes, however, there is no evidence in the record of whether noninfringing substitutes existed, of a defined relevant market, or of any other factors which might prove "but for" causation between Calco's infringement and WTC/WPCS's lost sales. Although it was unnecessary for WTC/WPCS to negate every possibility that purchasers might have bought another product, *Carella*, 804 F.2d at 141, 231 USPQ at 648, WTC/WPCS has wholly failed to meet its burden of proof of entitlement. *Yarway Corp. v. Eur-Control USA, Inc.*, 775 F.2d 268, 275, 227 USPQ 352, 357 (Fed.Cir.1985). As previously indicated, WTC/WPCS did not have to prove causation as a certainty, but it was required to show a reasonable probability that it would have made the sales involving Calco's infringing products. Not only did the district court award lost profits without such evidence, it made specific findings which tend to negate any possible assertion that WTC/WPCS would have made such sales absent Calco's sales. The district court specifically found "the product [i.e., the water purifying cup] in the hands of WPCS had, at the time of the infringement, achieved no significant marketing success." At 977. Moreover, it noted that WTC/WPCS's retail price for its cup significantly exceeded that of Calco's straws.

76

There is no finding in the district court's decision, either evidentiary or ultimate, that WTC/WPCS would have made sales "but for" Calco's sales. See *Bott v. Four Star Corp.*, 807 F.2d 1567, 1571, 1 USPQ2d 1210, 1212 (Fed.Cir.1986). Nor has WTC/WPCS pointed to evidence which warrants a remand for reconsideration of a lost profits award. WTC/WPCS's failure of proof leaves no alternative but to have damages redetermined upon the basis of a reasonable royalty for the period prior to September 1982 as well as after that date. Thus, we vacate the award in its entirety and remand for damage proceedings consistent with this opinion.

VIII

ATTORNEY FEES

77

The patent statute permits a district court to award reasonable attorney fees in an exceptional case. 35 U.S.C. Sec. 285 (1982). Having found this to be a case of willful infringement, the district court's discretionary award of attorney fees was proper. *Bott*, 807 F.2d at 1574, 1 USPQ2d at 1215; *Kori*, 761 F.2d at 657, 225 USPQ at 990. In any event, *Calco and Gartner* challenge only the amount, not the propriety, of the award.

78

Because the attorney fee award in this case was in part for work connected with the now-defunct unfair competition claim, the amount of the award cannot stand. Further, for this court to determine the reasonableness of the amount of an award, "there must be some evidence to support the reasonableness of, inter alia, the billing rate charged and the number of hours expended." *Lam, Inc.*, 718 F.2d at 1068, 219 USPQ at 678; see also *Hughes v. Novi Am., Inc.*, 724 F.2d 122, 124, 220 USPQ 707, 709 (Fed.Cir.1984) ("While an award of attorney fees is to be reviewed under the standard of whether such award constitutes an abuse of discretion, an award must be set aside if it is unsupported by adequate findings of the basis for the award, thereby precluding meaningful review"). Although we agree with the district court that a client's bill--if sufficiently detailed--might substitute for lost billing records, we are unable to find sufficient support in the record to perform a meaningful review of the reasonableness of the attorney fees award.

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Specifically, the district court abused its discretion by refusing to investigate the number of hours worked by specific attorneys. We recognize the caseload burdens under which courts labor in these times, and the caution that the "issue of reasonable fees should be settled in the most expeditious manner possible." *Monolith Portland Midwest Co. v. Kaiser Aluminum & Chem. Corp.*, 407 F.2d 288, 298, 160 USPQ 577, 584 (9th Cir.1969). Nevertheless, there must be some findings, certainly more than an "equitable instinct," supporting the fee award in order to provide a base for appellate review. *Accord Loctite Corp. v. Fel-Pro, Inc.*, 667 F.2d 577, 585, 213 USPQ 905, 912 (7th Cir.1981).

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Accordingly, we must vacate the award of attorney fees in the amount of \$150,000. As we did in *Stickle v. Heublein, Inc.*, 716 F.2d 1550, 1564, 219 USPQ 377, 387 (Fed.Cir.1983), however, we vacate without prejudice to the district court awarding attorney fees on remand upon appropriate findings.

IX

In summary, we reverse the award of damages for infringement based on an unsubstantiated theory of lost profits and remand for the district court to calculate an award based on a reasonable royalty. We reverse the portion of the judgment holding Calco and Gartner liable for unfair competition. We vacate the award of attorney fees without prejudice to the district court's awarding fees on remand. Calco and Gartner do not challenge on appeal the court's award of prejudgment interest. In view of the recalculation of a total damage award required by our decision, a recalculation of the amount of prejudgment interest must be made. Finally, regarding Gartner's separate appeal, we affirm the court's decision to hold Gartner liable for the full amount of whatever damages are awarded. No challenge was made to the finding of willfulness of the infringement; thus, that ruling by the court stands.

X

COSTS

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Each party shall bear its own costs on appeal.

83

AFFIRMED IN PART, REVERSED IN PART, VACATED IN PART, AND REMANDED.

1

Appellants bring separate appeals from the same judgment. Each of the issues presented for review in the Appeal Brief of co-Appellant Calco is common to both appeals, and co-Appellant Gartner incorporated the arguments of Calco's brief by reference in his own brief. Gartner raised one additional issue: whether the district court committed reversible error by holding Gartner personally liable for damages. Although not consolidated on appeal, the two appeals were argued the same day and, for the convenience of the court, we issue a single opinion

2

The process reacts a strong base anion exchange resin, such as the quaternary ammonium resin, with triiodide ions to form a stable compound of extremely low dissociation in water. (A "triiodide ion" is an ion formed from iodine. It has a valence of -1 and contains three iodine atoms. The iodine ion, I⁻, combines with molecular iodine, I₂, to form the triiodide ion, I₃⁻. If more of the elemental iodine combines with the monovalent triiodide ion, higher polyiodide ions will form, for example, the polyiodide ions I₅⁻ and I₇⁻.) The insolubilized triiodide groups of the resin "interact" with bacteria in the water.

3

In addressing this procedural challenge to the validity of the four patents, we apply the law of the regional circuit--the Seventh Circuit--where the appeal would lie but for the patent counts. See, e.g., *Digital Equip. Corp. v. Emulex Corp.*, 805 F.2d 380, 383 n. 3, 231 USPQ 779, 781 n. 3 (Fed.Cir.1986)

4

Although the doctrine of judicial estoppel may not be "followed by anything approaching a majority of jurisdictions, nor is there a discernable modern trend in that direction," *Konstantinidis v. Chen*, 626 F.2d 933, 938 (D.D.C.1980), the Seventh Circuit has considered and applied the doctrine. See, e.g., *Eagle Found., Inc. v. Dole*, 813 F.2d 798, 810 (7th Cir.1987); *Secretary of Labor v. Fitzsimmons*, 805 F.2d 682, 697 n. 18 (7th Cir.1986); *Himel v. Continental Illinois Nat'l Bank & Trust Co.*, 596 F.2d 205, 210 (7th Cir.1979); *In re Yarn Processing Patent Validity Litig.*, 498 F.2d 271, 279, 183 USPQ 65, 70 (5th Cir.), cert. denied sub nom. *Sauquoit Fibers Co. v. Leesona Corp.*, 419 U.S. 1057, 95 S.Ct. 640, 42 L.Ed.2d 654 (1974)

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Gartner adopts Calco's arguments. See supra note 1. For convenience, we refer only to Calco in this portion of the opinion

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The district court found literal infringement and infringement under the doctrine of equivalents. In view of our agreement with its findings of literal infringement, we need not reach that latter analysis

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Direct infringement is a prerequisite to finding induced infringement. See, e.g., *Met-Coil Sys. Corp. v. Korner's Unlimited, Inc.*, 803 F.2d 684, 687, 231 USPQ 474, 477 (Fed.Cir.1986)

8

Federal statutes provide very narrow grounds for relief from unfair competition. See, e.g., section 43(a) of the Lanham Act, 15 U.S.C. Sec. 1125(a) (1982), which is effective generally in the area of protection of trade identity and false advertising. In the area of international trade, under 19 U.S.C. Sec. 1337(a), United States companies are protected from "unfair methods of competition" in the importation of goods. The enactment of a comprehensive federal unfair competition statute has been proposed and debated for many years. See, e.g., Vandenburg, *Federal Law of Unfair Competition*, 1977 A.B.A. Sec. Pat., Trademark, & Copyright 147; *The Proposed Federal Unfair Competition Statute*, 57 Trademark Rep. 87 (1967); J. Peterson, *The Legislative Mandate of Sears & Compco: A Plan for a Federal Law of Unfair Competition*, 56 Trademark Rep. 16 (1966). Such a statute has never been enacted, however

9

See, e.g., *Petersen Mfg. Co. v. Central Purchasing, Inc.*, 740 F.2d 1541, 222 USPQ 562 (Fed.Cir.1984)