

# United States Court of Appeals for the Federal Circuit

03-1117

THE DOW CHEMICAL COMPANY,

Plaintiff-Appellant,

v.

MEE INDUSTRIES, INC. and FLORIDA POWER CORPORATION,

Defendants-Appellees.

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Appealed from: United States District Court for the Middle District of Florida

Judge Gregory A. Presnell

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DECIDED: September 5, 2003

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Before CLEVINGER, BRYSON, and DYK, Circuit Judges.

DYK, Circuit Judge.

Dow Chemical Company (“Dow”) appeals the judgment by the United States District Court for the Middle District of Florida in favor of Mee Industries, Inc. (“Mee”) and Florida Power Corporation (“Florida Power”) (collectively “appellees”). Dow Chem. Co. v. Mee Indus., 65 USPQ2d 1876 (M.D. Fla. 2002). We affirm as to the judgment of invalidity of claims 14-16, 21, and 22 of U.S. Patent No. 5,867,977 (“the ’977 patent”) and claim 30 of U.S. Patent No. 5,930,990 (“the ’990 patent”), but reverse as to the judgment of invalidity of claims 23 and 24 of

the '977 patent. We also affirm the judgment of no infringement by Florida Power and Mee as to claims 35, 37, and 38 of the '977 patent. As to the infringement of claims 23 and 24 of the '977 patent, we affirm the judgment of no direct infringement by Mee and Florida Power, but vacate and remand for further proceedings as to contributory and induced infringement by Mee. Finally, we hold that the district court erred in concluding that Dow did not carry its burden to establish damages because it failed to provide expert testimony on the damages issue.

## BACKGROUND

Dow is the assignee of the '977 and '990 patents ("the patents-in-suit"), both entitled "Method and Apparatus for Achieving Power Augmentation in Gas Turbines Via Wet Compression." The '977 patent was filed as a continuation-in-part based on the application that issued as the '990 patent. Substantial changes were made in the text of the application that led to the issuance of the '977 patent. However, the differences between the two specifications are not pertinent to this appeal. Reference will be made to the specification of the '977 patent as exemplary of the disclosures of the patents-in-suit.

The patents-in-suit are directed to improving the efficiency of gas turbines by increasing their power output. The improved efficiency results from modifying a turbine to employ an effect called "wet compression," which operates by permitting liquid water particles to enter the compressor of a gas turbine. The patents-in-suit explain wet compression as follows:

Wet compression enables power augmentation in gas turbine systems by reducing the work required for compression of the inlet air. This thermodynamic benefit is realized within the compressor of a gas turbine through "latent heat intercooling", where water (or some other appropriate liquid) added to the air inducted into the compressor cools that air, through evaporation, as the air with the added water is being compressed. The added water can be conceptualized as an "evaporative liquid heat sink" in this regard.

'977 patent, col. 2, ll. 3-12.

The inventors did not purport to have discovered power augmentation through wet compression, admitting in the Background of the Invention section that “[t]he power augmentation benefits of wet compression have been generally understood for some time.” *Id.* at col. 2, ll. 35-36. However, the inventors asserted that they were the first to comprehend that a large amount of water could be added to an operational compressor without destroying the compressor by adding the water in increments. Thus, the invention was directed at achieving the beneficial effects of wet compression while minimizing its potentially deleterious side effects.

On April 5, 2000, Dow filed a complaint alleging patent infringement of the '977 and '990 patents by Mee and Florida Power. Dow, *inter alia*, asserted infringement of claims 14-16, 21-24, 35, and 37-38 of the '977 patent and claim 30 of the '990 patent.<sup>[1]</sup> Claim 14 of the '977 patent was the sole asserted independent claim of the '977 patent, although asserted dependent claims 35, 37, and 38 depended either directly or indirectly from independent claim 29, which was not directly asserted. Independent claim 30 was the only claim of the '990 patent at issue. On May 10 and 11, respectively, Mee and Florida Power answered the complaint and asserted invalidity, unenforceability, and noninfringement counterclaims against Dow.<sup>[2]</sup> Following an August 2, 2001, hearing, the district court issued an order on August 17, 2001, construing disputed claim terms.

The district court held a six-day bench trial between December 10 and 18, 2001, addressing the claims of infringement and the counterclaims. During trial, the court excluded the testimony of Dow's expert on damages, citing Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579 (1993). On September 19, 2002, the court issued a memorandum opinion finding that Dow was not entitled to damages as a matter of law because it “had not carried its burden to establish damages.” *Dow*, 65 USPQ2d at 1879. The court also held claims 14-16 and 21-24 of the '977 patent and claim 30 of the '990 patent invalid under 35 U.S.C. § 103. *Id.* at 1897. Finally, the court held claims 14-16, 21-24, 35, and 37-38 of the '977 patent and claim 30 of the

'990 patent not infringed by Mee or Florida Power. Id.

The court concluded that two pieces of prior art supported the obviousness determination. The first was a 1990 article entitled "Gas Turbine Performance Direct Mixing Evaporative Cooling System, American Atlas Cogeneration Facility, Rifle, Colorado," by J. P. Nolan and V. J. Twombly ("the Nolan Article"). The Nolan article described "the design, installation, operation and performance of a direct mixing evaporative cooling system." Nolan Article at 1. As found by the district court, this reference taught the use of 16 gallons per minute of "overspray" (wet compression), which resulted "in an increase in output due to the mass flow." Dow, 65 USPQ2d at 1884. The court also found that "[t]he system as operated did not . . . use increments." Id.

The second piece of prior art relied upon by the court was a May 1, 1995, document entitled "Fog System Proposal for Fern Engineering Company: Gas Turbine Overspray Cooling System" ("the Mee proposal") sent by Mee to Fern Engineering. The court found this document to be an offer to sell the system described in the Mee proposal. Dow, 65 USPQ2d at 1890. The Mee proposal was sent in response to an equipment specification entitled "Duct Water Spray Delivery System Specification for a Gas Turbine Inlet Water Overspray Cooling System" sent by Fern Engineering to Mee on January 17, 1995. (J.A. 10306) ("the Fern Specification"). The court relied upon the Fern Specification when determining what was offered for sale in the Mee proposal. Dow, 65 USPQ2d at 1884-85. The court found that the system as proposed would incrementally introduce up to one percent water uniformly into a gas turbine "assuming a fully humidified day." Id. at 1893.

On the issue of infringement, the court found that Dow "ha[d] not met its burden of proof to show that Mee or Florida Power infringed Claims 35, 37, and 38 of the '977 patent." Id. at 1895. As to claims 14-16, 21-24 of the '977 patent and claim 30 of the '990 patent, the court found that Florida Power did not infringe because it failed to increase water flow over time, but

rather added “water for overspray purposes . . . at once.” Id. at 1896. As to defendant Mee, the court found that Mee did not directly infringe Dow’s method claims because Mee only sold equipment, and therefore, did not itself practice the patented methods. On the issues of contributory and induced infringement of Dow’s asserted method claims, the court found that Mee did not infringe, because the systems sold by Mee did not adjust water volume for the purpose of avoiding thermal stress, and because the amount of water utilized in those systems was insufficient to cause destructive thermal stresses. Id. at 1897.

On October 10, 2002, the district court entered judgment in favor of Mee and Florida Power in accordance with the memorandum opinion. Dow filed a timely appeal. We have jurisdiction pursuant to 28 U.S.C. § 1295(a).

## DISCUSSION

This court reviews the judgment of a district court following a bench trial “for errors of law and clearly erroneous findings of fact.” Allen Eng'g Corp. v. Bartell Indus., Inc., 299 F.3d 1336, 1343-44 (Fed. Cir. 2002). For issues of obviousness, “[w]e review [the] district court’s underlying findings of fact for clear error, while we rule de novo on the ultimate issue of obviousness.” Oakley, Inc. v. Sunglass Hut Int’l, 316 F.3d 1331, 1339 (Fed. Cir. 2003).

### I. Obviousness

The district court held all eight of the method claims asserted by Dow invalid on the ground of obviousness in view of the Nolan reference and the Mee proposal.

#### A.

The first issue is whether the Mee proposal is, in fact, prior art against the claims of either of the patents-in-suit. The district court found that the Mee proposal constituted prior art as an

“invention . . . on sale in this country, more than one year prior to the date of the application for patent in the United States.” 35 U.S.C. § 102(b) (2000). The ultimate determination of whether an invention was on sale is a question of law based on underlying issues of fact. Allen Eng'g Corp., 299 F.3d at 1344.

Dow argues that the district court erroneously considered the Fern specification to be part of the Mee proposal. However, because the Mee proposal was in direct response to the requirements enumerated in the Fern specification, it was proper for the district court to rely on the Fern specification as part of the Mee proposal. The district court did not err in concluding that the apparatus described in that proposal was offered for sale more than one year prior to the filing date of Dow's earliest filed application.

Dow argues alternatively that, even if the Mee proposal constituted an offer for sale, the proposal did not offer the method of using that system. The scope of what is taught by a prior art apparatus extends not only to the apparatus itself, but also to the obvious methods of use suggested by the structure of that apparatus. See In re Lonardo, 119 F.3d 960, 968 (Fed. Cir. 1997) (holding that “[t]he claimed structure of the device suggests how it is to be used and that use thus would have been obvious”), cert. denied, 522 U.S. 1147 (1998). The Mee proposal placed a specific apparatus on sale, and thus constituted a piece of prior art against the claims of the patents-in-suit both as an apparatus and the obvious uses of that apparatus.

## B.

The second issue is whether the particular claims were rendered obvious by the cited prior art references. Neither the district court in its opinion, nor the parties in their briefs have paid sufficient attention to the specific language of the individual claims, or the proper construction of those claims. As this court has repeatedly emphasized, “each claim of a patent (whether in independent, dependent, or multiple dependent form) shall be presumed valid

independently of the validity of other claims; [and] dependent or multiple dependent claims shall be presumed valid even though dependent upon an invalid claim.” Dayco Prods., Inc. v. Total Containment, Inc., 329 F.3d 1358, 1370 (Fed. Cir. 2003) (quoting 35 U.S.C. § 282 (2000)). We proceed to consider the individual claims.

Claim 14 of the '977 Patent and Claim 30 of the '990 Patent

Two independent claims were declared invalid by the district court, claim 14 of the '977 patent and claim 30 of the '990, which respectively provide:

A method for augmenting the net output of a gas turbine having an axial flow multistage compressor for acquiring and compressing a working fluid comprising air, the method comprising the steps of:  
adding increasing amounts of liquid water comprising liquid droplets to the working fluid acquired by the compressor, with the mass flow rate of the liquid droplets being increased over time to avoid destructive thermal stresses within the gas turbine which are related to the providing of increased amounts of liquid water to the working fluid, and thereafter, after achieving a desired mass flow rate,  
providing liquid water comprising liquid droplets to the working fluid acquired by the compressor at a substantially constant mass flow rate over a period of continuous operation exceeding about 4 hours to augment the net output of the gas turbine by wet compression.

Claim 14 of the '977 patent.

A wet compression power augmentation method for adding nebulized water to a gas turbine, said gas turbine having a housing and a compressor, said compressor having a compressor inlet, comprising:  
nebulizing water in said compressor inlet; and  
adding water to modify said nebulized water in a plurality of nebulized water mass flow increments such that operationally-induced thermal stresses within said gas turbine due to the ingestion and evaporation in whole or in part of said nebulized water are sufficiently minimized to preserve structural integrity in said gas turbine.

Claim 30 of the '990 patent.

Three relevant findings of fact were made by the district court with respect to claims 14 and 30.



First, the district court found that the Nolan reference teaches all of the limitations of these claims except the use of increments. Dow, 65 USPQ2d at 1892. Second, the court found that the system offered for sale in the Mee proposal was designed to be operated by incrementing or “ramping” the amount of water input to the compressor. Id. at 1883. Third, the court found that a person having ordinary skill in the art would have been motivated to modify the method disclosed in the Nolan reference to employ increments as suggested by the system offered for sale in the Mee proposal. Id. Based on these findings and the failure of Dow to provide sufficient contrary factual evidence through secondary considerations, the court reached the legal conclusions that claim 14 of the ‘997 patent and claim 30 of the ’990 patent were obvious in view of the prior art.

Dow conceded at oral argument here that if no particular volume of water were required by these claims, these claims would be obvious in view of the prior art. Dow urges that the “to avoid destructive thermal stresses” language of claim 14 and the “operationally-induced thermal stresses . . . are sufficiently minimized” of claim 30 be interpreted as requiring a minimum amount of flow, which Dow describes as “massive flow.” According to Dow, the claims should be interpreted to require a flow of water that would otherwise cause destructive thermal stresses, those thermal stresses being avoided by dint of the steps of the claimed method. Dow does not suggest any specific numerical value that corresponds to the “massive flow.” We conclude that the “thermal stresses” language in the claims does not require the addition of any particular amount of water. The district court, therefore, properly concluded that claims 14 and 30 are obvious in view of the cited prior art.

#### Claim 15 of the ’977 Patent

Claim 15 of the ’977 patent depends from claim 14 and recites, “the liquid water ultimately provided to the axial-flow multistage compressor is in an amount which achieves an increase of at least about 10% in the net output of the gas turbine as measured against the net output of the

gas turbine under comparable conditions but without liquid water provided.” Claim 15 of the ’977 patent (emphasis added). This claim differs from claim 14, in that it requires the introduction of a minimum volume of water, *i.e.*, water sufficient to create a 10% increase in efficiency. The district court analyzed claim 15 along with dependent claims 21 and 23 in a conclusory fashion, stating that:

Claims 15, 21, and 23 each concern the amount of water added to the working fluid for overspray purposes, or the output that would be achieved by adding water. The Court finds that Giampaolo’s testimony that these dependent claims are obvious based on the prior art to be persuasive. Mee’s proposal to Fern would, assuming a fully humidified day, provide one percent of water. The prior art also teaches that two percent is an original equipment manufacturer’s limiting recommendation for flow.

Dow, 65 USPQ2d at 1893. Giampaolo testified concerning claim 15 that “the water flow rate in the [Mee] proposal would not give them a ten percent power augmentation level, but, again, the prior art teachings do show that they could increase that flow rate to achieve this ten percent.” (Tr. at 907-08.) Figure 5 of the Nolan article (the base reference applied by the district court in rejecting claim 14) shows an increase in average turbine output for the month of July from approximately 13,100 KW to approximately 14,600 KW when using the Rainmaker overspray system. Thus, the Nolan article expressly teaches that greater than 10% increase in efficiency can be achieved through water overspray. We, therefore, affirm the district court’s judgment of invalidity of claim 15 under section 103 over the Nolan article in view of the Mee proposal.

#### Claim 16 of the ’977 Patent

Claim 16 of the ’977 patent defines the method of claim 14 as requiring that “liquid water is provided to the working fluid in the form of a plurality of nebulized mass flow increments.” The district court found that “Mee’s proposal to Fern provided six stages, which are units or discrete amounts of water, and thus would provide increments of water as overspray.” Dow, 65 USPQ2d at 1893. It was this use of incremental water volume that the court concluded would have been

obvious to a person having ordinary skill in the art to use to modify the teachings of the Nolan article. Dow points to no error in fact or in law in the district court's analysis of claim 16 except those that we have already rejected in connection with claim 14. We therefore affirm the judgment of obviousness as to claim 16.

#### Claim 21 of the '977 Patent

Claim 21 of the '977 patent is a multiple-dependent claim, but only independent claim 14 from which it depends is asserted. This claim further requires that "the working fluid acquired by the compressor over a period of continuous operation exceeding about 4 hours comprises at least about three-quarters of one weight percent of liquid water in admixture with fully-humidified air." In describing the teachings of the Nolan article, Dow conceded that the article "taught the use of 0.5% - 0.88% water in wet compression." (Appellant's Br. at 12.) Dow, therefore, admitted that the cited prior art encompasses the use of "about three-quarters of one weight percent of liquid water in admixture." There is no dispute that the Nolan article also taught the four-hour durational requirement. The district court properly concluded that claim 21 is rendered obvious.

#### Claim 22 of the '977 Patent

Claim 22 of the '977 patent depends from claim 21 and defines the method of claim 21 as a method "for augmenting the net output of a heavy duty industrial gas turbine." Because the Nolan reference is directed to the augmentation of such a turbine, the district court properly concluded that claim 22 is rendered obvious on the same basis on which claim 21 was determined to be obvious.

#### Claim 23 of the '977 Patent

Claim 23, like claim 21, is a multiple dependent claim based on asserted claim 14 and

requires instead of about three-quarters of one weight percent, “about two weight percent to about eight weight percent of liquid water in admixture with fully-humidified air.” Unlike claim 21, Dow has made no concession that the introduction of this much water was known in the prior art. Further, Mee does not contend that the system offered for sale in the Mee proposal would add this level of water. The question is whether the Nolan article supports a finding of obviousness.

In concluding that claim 23 was obvious, the district court relied on the testimony of Giampaolo interpreting the Nolan article as teaching that “two percent is an original equipment manufacturer’s limiting recommendation for flow.” Dow, 65 USPQ2d at 1893. The passage of the Nolan article cited by Giampaolo and the district court provides in full as follows: “If all the additional water was added as mass flow, it would be 7.5 GPM or .6% of the GT mass flow, which is well within the OEM’s allowable range (maximum 2% water).” Nolan Article at 4 (emphasis added). Thus, the cited portion of the article did not teach operating for four hours at a minimum of 2% flow, but instead that the equipment manufacturer’s allowable range extended to 2%, i.e., that the warranty would be invalidated if the 2% level were exceeded. It was clear error for the district court to interpret an OEM statement that 2% is an operational maximum as a teaching of a minimum of four hours operation at or above that maximum. The district court’s conclusion of obviousness as to claim 23 based on the Nolan article in view of the Mee proposal, therefore, was error.

On appeal, Mee alternatively cites to the testimony of V. J. Twombly as rendering obvious the 2% to 8% requirement of claim 23. (Appellee’s Br. at 45.) Twombly testified that he had operated a turbine while injecting “a maximum of 15 percent of mass flow at various times.” (Tr. at 585.) Twombly also testified that he had “inject[ed] about ten percent of mass flow at maximum conditions in Brush, Colorado.” (Id. at 606.) Mee’s theory is that the testimony of Twombly evidenced prior public use. However, the testimony was vague as to

whether the alleged activity occurred more than a year prior to the filing of the applications that issued as the patents-in-suit, and the testimony lacked corroboration in any event. “Corroboration is required of any witness whose testimony alone is asserted to invalidate a patent, regardless of his or her level of interest.” Tex. Digital Sys., Inc. v. Telegenix, Inc., 308 F.3d 1193, 1217 (Fed. Cir. 2002) (quoting Finnigan Corp. v. Int'l Trade Comm'n, 180 F.3d 1354, 1369 (Fed. Cir. 1999)), cert. denied, 123 S.Ct. 2230 (U.S. May 27, 2003). The additional evidence cited by Mee, therefore, does not support the district court’s holding of obviousness. Further, Dow presented evidence supporting the conclusion of non-obviousness based on a belief of those skilled in the art prior to the date of invention that the recited levels of water would be harmful. We therefore reverse the judgment of obviousness with respect to claim 23 of the ’977 patent.

#### Claim 24 of the ‘997 Patent

With regard to claim 24, this claim depends from claim 23 and defines the method of claim 23 as a method “for augmenting the net output of a heavy duty industrial gas turbine.” In view of its dependence from claim 23, we reverse the judgment of obviousness with respect to claim 24.

## II. Infringement

### A. Apparatus Claims 35, 37, and 38 of the ’977 Patent

At trial, Dow asserted infringement of apparatus claims 35, 37, and 38 by Florida Power under a theory of direct infringement and by Mee under theories of direct, induced, and contributory infringement. In accordance with an in limine ruling, the district court limited the scope of Dow’s infringement case to “its expert reports of April 13, 2001.” Dow, 65 USPQ2d at 1895. According to the district court, two of those reports failed to address the apparatus claims at all. Id. The third report (filed by Dow’s patent expert), along with that expert’s testimony

during trial, were described by the court as “conclusory” and “insufficient to prove, by a preponderance of the evidence, that the Defendants infringed [the apparatus claims].” Id.

Claims 35, 37, and 38 are dependent claims based on claim 29,<sup>[3]</sup> which is written in means-plus-function format. On appeal, Dow urges that “[t]he [district] court should not have limited the ‘means for controlling angular distortion’ [of claim 29] to a measurement system or apparatus but, rather, should have analyzed Mee’s system to determine if it incorporated any means identified by Dow’s embodiments.” (Appellant’s Br. at 41.) We need not, however, resolve this issue of claim construction. The district court held that the evidence presented by Dow at trial was insufficient as a matter of law to prove infringement. Dow points to no evidence of infringement of claims 35, 37, and 38, either under the district court’s construction or its alternative construction. We, therefore, affirm the judgment of noninfringement by the district court as to claims 35, 37, and 38.

#### B. Method Claims 23 and 24 of the ’977 Patent

Having affirmed the judgment of invalidity as to all of the asserted method claims except dependent claims 23 and 24 of the ’977 patent, we do not consider the issue of infringement of the invalid claims. Dow asserted infringement of method claims 23 and 24 of the ’977 patent by Florida Power under a theory of direct infringement and by Mee under theories of direct, induced, and contributory infringement. The district court held that neither Florida Power nor Mee infringed those claims.

With regard to Dow’s claim of infringement against Florida Power, the district court found that:

The evidence in the record demonstrates . . . that Florida Power does not “add [ ] increasing amounts of liquid water . . . with the mass flow rate of the liquid droplets being increased over time” (Claim 14) . . . . The controls used at Florida Power have two overspray settings, either off or ten degrees of “maxovercool.” All pumps that are necessary to achieve overspray come on at the same time, and

thus water for overspray purposes is added at once.

Dow, 65 USPQ2d at 1895-96 (emphases in original). Based on these findings, the court held that Florida Power did not infringe independent claim 14, and thus dependent claims 23 and 24. Dow does not argue that the court made a clearly erroneous finding of fact or error of law. In fact, Dow's only mention of the district court's holding of noninfringement by Florida Power is in the title of subsection B of the Argument section of its brief on appeal. (Appellant's Br. at 32.) We, therefore, affirm the judgment of noninfringement by Florida Power of claims 23 and 24 of the '977 patent.

As to Dow's claim of direct infringement of its method claims by Mee, the district found that Mee "sells fogging systems for use by customers . . . . [but] does not [itself] practice the patented method." Dow, 65 USPQ2d at 1896. Again, Dow does not dispute on appeal the district court's finding of fact that Mee does not itself practice the claimed method. The judgment of no direct infringement by Mee of method claims 23 and 24 is affirmed.

As to Dow's claims of induced and contributory infringement by Mee, the district court cited two findings upon which its holding of noninfringement was based: 1) "[w]hile the Mee fogging systems described in the claim charts provide stages or increments, these claim charts do not describe or show that Mee's increments or stages are used to 'avoid destructive thermal stresses'"; and 2) because thermal stresses do not occur at less than 10% overspray and Mee's systems use a maximum of 3% overspray, "Mee's fogging systems . . . do not add increasing amounts of water over time to avoid destructive thermal stresses." Id. at 1897.

As to the first basis upon which the court found noninfringement, the logic underlying this finding is based on an error of law. The issue is whether by increasing the amount of water over time in the systems sold by Mee, destructive thermal stress was avoided. Even if an operator increased water over time in a Mee system for an entirely different reason, that would not avoid infringement, as the motive of the accused infringer when performing a claimed

method is simply not relevant. Hilton Davis Chem. Co. v. Warner-Jenkinson Co., 62 F.3d 1512, 1519 (Fed. Cir. 1995) (en banc), rev'd on other grounds, 520 U.S. 17 (1997).

As to the second basis upon which the district court found noninfringement, the district court's conclusion from the evidence that destructive stresses do not occur below 10 weight percent overspray does not negate infringement. The evidence cited by the district court might suggest that it would be unnecessary for a device producing less than 10 weight percent overspray to employ the method recited in claim 23 in order to avoid destructive thermal stresses, but that does not mean that use of the method would not infringe. The statement in a claim that the method is intended to serve a particular purpose at most requires that the undesirable result (here destructive thermal stresses) be avoided. Such a statement does not give rise to a defense to infringement by showing that practicing the claimed method was not necessary to achieve that purpose. Thus, for example, a party who practices a patented method of automotive emission control that is claimed to avoid violation of state emission standards cannot defend against a charge of infringement by showing that its automobiles would pass state emission standards even without using the claimed method. Therefore, even crediting the evidence that destructive thermal stresses would not result under any circumstances from the addition of the concentration of overspray that is used in Mee's systems does not mean that Mee cannot be liable for induced or contributory infringement of claim 23. In other words, as we have already held, the destructive thermal stresses language cannot be interpreted to require the addition of a particular amount of water. Claim 23 only requires "about two weight percent to about eight weight percent of liquid water," not in excess of 10 percent as the district court implicitly required. On remand, the district court must determine whether, using the correct claim construction, induced or contributory infringement by Mee of claims 23 and 24 has been established based on the existing record.

### III. Damages



If, on remand, the district court determines that infringement of claims 23 and 24 has been established, the district court must consider the issue of damages, again based on the existing record. In addition to its holdings on obviousness and infringement, the district court ruled during trial that Dow was not entitled to damages. The court ruled from the bench as follows:

The only evidence [on damages] is the testimony of Mr. Pirc [Dow's damages expert] and [ ] two license agreements. The license agreement with Siemens, in my opinion, can't be viewed as an arm's length transaction.

\* \* \*

The agreement with Caldwell, I think, establishes a totally different pricing structure and, again, can't be -- form the basis of support for the claimed royalty of \$12 per kilowatt of augmentation.

With respect to the opinion of Mr. Pirc, I find that his testimony does not meet the requirements of rule 702 or the opinions of the United States Supreme Court in Gilbert and Comeau Tire.

\* \* \*

So, in my view, [Dow's expert's] opinion is essentially Dow's unilateral belief of what it could charge or what it would like to charge, and so I'm not going to credit [the] opinion with respect to a reasonable royalty; and since that's the only evidence of damage, then I find that plaintiff has failed to sustain its burden of proving damages.

(Tr. at 442-44.) Thus, here the district court expressed an inability to calculate damages after excluding the testimony of Dow's damages expert. Dow does not appeal the district court's exclusion of its expert's reasonable royalty testimony. Rather Dow urges that reasonable royalty damages can be awarded even without such testimony; that there is a presumption of damages where infringement has been established; and that there is other evidence in the record, including the evidence supporting Perc's excluded opinions, that the district court must consider. We agree.

The applicable statute, 35 U.S.C. § 284, provides in relevant part:

Upon finding for the claimant the court shall award the claimant damages adequate to compensate for the infringement, but in no event less than a reasonable royalty for the use made of the invention by the infringer, together with interest and costs as fixed by the court.

When the damages are not found by a jury, the court shall assess them.

\* \* \*

The court may receive expert testimony as an aid to the determination of damages or of what royalty would be reasonable under the circumstances.

35 U.S.C. § 284 (2000) (emphases added). The statute is unequivocal that the district court must award damages in an amount no less than a reasonable royalty. *Id.*; see also Lindemann Maschinenfabrik GmbH v. Am. Hoist & Derrick Co., 895 F.2d 1403, 1406 (Fed. Cir. 1990) (“In patent law, the fact of infringement establishes the fact of damage because the patentee's right to exclude has been violated.”) (citing 5 Chisum on Patents § 20.03[3], at 20-142 (1986)). Further, section 284 is clear that expert testimony is not necessary to the award of damages, but rather “may [be] receive[d] . . . as an aid.” 35 U.S.C. § 284 (2000) (emphasis added).

The district court’s conclusion that no damages could be awarded, in light of the presumption of damages when infringement is proven, was in error. But, the district court’s obligation to award some amount of damages “does not mean that a patentee who puts on little or no satisfactory evidence of a reasonable royalty can successfully appeal on the ground that the amount awarded by the court is not ‘reasonable’ and therefore contravenes section 284.” Lindemann, 895 F.2d at 1407. Should Dow prove infringement of claims 23 and 24 the district court should consider the so-called Georgia-Pacific factors (Ga.-Pac., Corp. v. United States Plywood Corp., 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970)) in detail, and award such reasonable royalties as the record evidence will support.<sup>[4]</sup>

## CONCLUSION

For the above reasons, the court affirms the judgment of invalidity of claims 14-16, 21, and 22 of the '977 patent and claim 30 of the '990 patent. The court also affirms the judgment of noninfringement by Florida Power and Mee of claims 35, 37, and 38 of the '977 patent. As to claims 23 and 24 of the '977 patent, the court affirms the judgment of no direct infringement by Mee and Florida Power, but reverses the judgment of invalidity and vacates the judgment of no induced or contributory infringement by Mee with respect to claims 23 and 24, and remands for further proceedings. Finally, we hold that, if infringement is established, the ruling that Dow did not carry its burden to establish damages was erroneous.

**AFFIRMED-IN-PART, REVERSED-IN-PART, VACATED-IN-PART, and REMANDED**

**COSTS**

No costs.

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[1] During trial, the court dismissed with prejudice Dow's allegations of infringement of claims 16 and 55 of the '990 patent at Dow's request. Dow, 65 USPQ2d at 1879. Those claims, therefore, are not at issue in this appeal.

[2] Florida Power also asserted a cross-claim against Mee, which was dismissed without prejudice by stipulation on February 22, 2001.

[3] Claim 29 provides:

Apparatus comprising an industrial gas turbine having an axial-flow multistage compressor having an inlet for acquiring a working fluid comprising air, the apparatus further comprising:  
means for providing liquid water particles to the working fluid acquired by the compressor, and  
means for controlling angular distortion of the housing which is related to the providing of liquid water to the working fluid to a generally predetermined acceptable limit that prevents damage to the axial-flow multistage compressor.

[4] We also note that the district court's conclusion that the Caldwell license agreement did not support any award of damages is erroneous. The court found that the Caldwell agreement "establishes a totally different pricing structure" than that requested by Dow. However, the fact that the agreement did not support the specific amount requested by Dow does not thereby mean that it does not support any award at all. Prior agreements "carry considerable weight in calculating a reasonable royalty rate." Unisplay, S.A. v. Am. Elec. Sign Co., 69 F.3d 512, 519 (Fed. Cir. 1995).