

NOTE: This disposition is nonprecedential.

## United States Court of Appeals for the Federal Circuit

2007-1420, -1440

LEXION MEDICAL, LLC,

Plaintiff-Cross Appellant,

v.

NORTHGATE TECHNOLOGIES, INC.,  
SMITH & NEPHEW, INC., and LINVATEC CORPORATION,

Defendants-Appellants.

David G. Wille, Baker Botts L.L.P., of Dallas, Texas, argued for plaintiff-cross appellant. With him on the brief was David O. Taylor.

Meredith Martin Addy, Brinks Hofer Gilson & Lione, of Chicago, Illinois, argued for defendants-appellants. With her on the brief were Timothy Q. Delaney, Timothy P. Lucier, and Laura A. Lydigsen.

Appealed from: United States District Court for the Northern District of Illinois

Judge James M. Rosenbaum (sitting by designation)

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Appeals from the United States District Court for the Northern District of Illinois in case no. 1:04-CV-5705, Judge James M. Rosenbaum (sitting by designation).

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DECIDED: August 28, 2008

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Before MICHEL, Chief Judge, RADER and SCHALL, Circuit Judges.

SCHALL, Circuit Judge.

## DECISION

Defendants-Appellants Northgate Technologies, Inc., Smith & Nephew, Inc., and Linvatec Corp. (“Northgate” or “defendants”) appeal from the final judgment of the United States District Court for the Northern District of Illinois, entered following a jury trial, that Claims 11 and 12 of United States Patent No. 5,411,474 (“the ’474 patent”) are valid and were infringed by Northgate. Plaintiff-Cross Appellant Lexion Medical, LLC

("Lexion") cross-appeals the district court's determination that Northgate's post-verdict sales did not constitute willful infringement. It also cross-appeals the district court's grant of judgment as a matter of law ("JMOL") that the asserted claims of United States Patent No. 6,068,609 ("the '609 patent") are invalid for obviousness. We affirm-in-part, vacate-in-part, and remand for further proceedings.

## DISCUSSION

### I

During laparoscopic surgery, a small incision is made in the patient's abdomen, and the abdominal cavity is then inflated with carbon dioxide gas to create an empty space in which a surgeon performs surgery. An important advantage of laparoscopic surgery is its minimally invasive nature, as it avoids the larger incisions and longer recovery times associated with conventional surgery. A common side effect, however, is that patients often suffer from post-operative shivering and shoulder pain.

Lexion's '474 and '609 patents disclose and claim a method and apparatus for heating and humidifying the gas used to inflate a patient's abdomen during laparoscopic surgery. The heated gas helps reduce the side effects of post-operative shivering and shoulder pain frequently experienced following laparoscopic surgery.

Claim 11 of the '474 patent (with the pertinent limitations underscored) recites the following:

A method of providing heated, humidified gas into a patient for an endoscopic procedure comprising the steps of:

- a) directing pressure- and volumetric flow rate-controlled gas, received from an insufflator into a chamber having a means for heating the gas to a temperature within a predetermined range and a means for humidifying the gas and being disposed immediately adjacent to the patient, wherein the chamber is in flow

communication with and immediately adjacent to a means for delivering the gas to the interior of the patient;

b) sensing the temperature of the gas as it exits the chamber to determine if it is within the predetermined range; and

c) actuating the heating means if the temperature of the gas is without the predetermined range;

d) humidifying the gas within the chamber; and

e) flowing the gas into the delivering means such that the gas enters the patient humidified and having a temperature within 2°C of the predetermined temperature and thus providing the gas.

Claim 12 of the '474 patent recites:

The method of claim 11, wherein the heating means and the humidifying means heat and humidify the gas simultaneously.

The '609 patent improves upon the '474 patent by including a recharge port on the humidifier that allows the humidifier's water supply to be replenished during extended surgeries.

## II

The Insuflow is Lexion's commercial embodiment of the patented inventions. The Humi-Flow is the accused device marketed and sold by defendants.<sup>1</sup> Like the inventions which are the subjects of the '474 and '609 patents, the accused Humi-Flow device both heats and humidifies gas inside a chamber before delivering it into a patient's body for use in laparoscopic surgery. Specifically, the Humi-Flow features a tubular chamber housing a central heater core surrounded by a layer of humidification media. The surface of the humidification media contains grooves which define hollow

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<sup>1</sup> Northgate Technologies, Inc. serves as the original equipment manufacturer for Smith & Nephew, Inc. and Linvatec Corp., who sell their own versions of the Humi-Flow.

ducts through which gas flows. As gas flows through these hollow ducts, the heater core and humidification media impart both heat and moisture to the gas. Temperature sensors embedded within the heater core help maintain the temperature of the core at 70°C, by triggering the heater whenever the core temperature falls below 70°C. In this manner, the surrounding gas temperature is indirectly maintained at a temperature between 32-41°C.

### III

Lexion filed suit against defendants in the United States District Court for the Northern District of Illinois, asserting that their Humi-Flow devices infringed claims 11 and 12 of the '474 patent, and claims 1, 8, 9, 16, and 23 of the '609 patent. Prior to submitting the case to the jury, the district court granted JMOL that the asserted claims of the '609 patent were invalid for obviousness. Thereafter, the jury returned a verdict that claims 11 and 12 of the '474 patent were not invalid and had been literally infringed by the defendants. The jury awarded Lexion \$721,662 in damages.<sup>2</sup> Before entry of a permanent injunction, Northgate liquidated its remaining inventory of Humi-Flow devices. In response, Lexion moved to modify the judgment to include enhanced damages for willful infringement. The district court denied the motion, however, electing instead to award compensatory damages for the post-verdict sales, as well as the attorney fees incurred by Lexion in bringing its motion.

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<sup>2</sup> Even though the district court granted JMOL that the asserted claims of the '609 patent were invalid for obviousness, the infringement and validity of the '609 patent were nonetheless submitted to the jury. On those questions, the jury (1) found defendants liable for direct, contributory, and induced infringement of the asserted claims of the '609 patent, (2) found the asserted claims of the '609 patent not invalid, and (3) awarded damages.

#### IV

Northgate now appeals with respect to the infringement and validity of the '474 patent. Lexion has cross-appealed with respect to willful infringement of the '474 patent and invalidity of the '609 patent. We have jurisdiction over the appeal and the cross-appeal pursuant to 28 U.S.C. § 1295(a)(1).

Claim construction is a question of law which this court reviews de novo. Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1454 (Fed. Cir. 1998) (en banc). Literal infringement is a question of fact, reviewed for substantial evidence when tried to a jury. ACCO Brands, Inc. v. ABA Locks Mfrs. Co., 501 F.3d 1307, 1311 (Fed. Cir. 2007). We review a jury's conclusions on obviousness, a question of law, without deference, and the underlying findings of fact, whether explicit or implicit within the verdict, for substantial evidence. TI Group Automotive Systems (N. Am.), Inc. v. VDO N. Am., L.L.C., 375 F.3d 1126, 1133 (Fed. Cir. 2004). The grant or denial of JMOL is reviewed under the law of the regional circuit in which an appeal from the district court would normally lie. Union Carbide Chems. & Plastics Tech. Corp. v. Shell Oil Co., 425 F.3d 1366, 1372 (Fed. Cir. 2005). The regional circuit in this case is the Seventh Circuit, which reviews without deference a district court's grant of JMOL. See Harper v. Albert, 400 F.3d 1052, 1061 (7th Cir. 2005). We review the district court's finding of no willful infringement for clear error. BIC Leisure Prods., Inc. v. Windsurfing Int'l, Inc., 1 F.3d 1214, 1222 (Fed. Cir. 1993).

#### V

On appeal, Northgate challenges the judgment that claims 11 and 12 of the '474 patent were infringed and valid. It argues that its accused devices do not infringe the

'474 patent because they do not meet three limitations of the asserted claims: (1) the “means for heating” and “means for humidifying” limitations of claim 11(a); (2) the “sensing the temperature of the gas as it exits the chamber” limitation of claim 11(b); and (3) the delivery of gas “within 2°C of the predetermined temperature” limitation of claim 11(e). Northgate further argues that the '474 patent is invalid for obviousness in view of various prior art references. We address these contentions in turn.

A. “means for heating” and “means for humidifying”

The prosecution history is pertinent to Northgate’s argument relating to these limitations. During prosecution of the '474 patent, in an office action dated February 1, 1994, the examiner rejected various claims as anticipated by U.S. Patent No. 4,825,863 to Dittmar et al. (“Dittmar”). The claims rejected as anticipated by Dittmar were application claims 1-3, 6, 7, 9, 10, 12, 14, 15, and 22. Application claims 17 and 18, corresponding to claims 11 and 12 of the '474 patent, were allowed. In her rejection, the Examiner stated: “Dittmar et al. disclose an apparatus for treating gas comprising a housing 1, a chamber 20 within the housing, a humidifier 25 in the chamber and a heating means 21 and 22 within the humidifier.”

The applicants responded to this rejection on May 2, 1994, by cancelling claim 12 and by amending independent claims 1, 14, and 22 (all previously rejected over Dittmar), and hence their dependent claims, to include a limitation specifying that the claimed invention was for use in an “endoscopic” procedure. With the exception of application claim 22, all of the rejected claims that were amended to include the “endoscopic” procedure limitation also contained the limitation that the humidification means in the chamber be “in the path of travel of the gas through the chamber,” as well

as the limitation of a heating means “within the humidification means.” In that regard, the applicants stated: Dittmar discloses a humidification means which is not in the path of travel of gas through the chamber, as claimed, e.g., in Claim 1, and which is not a volume of water in flow communication with the gas as claimed, e.g., in Claim 3.” (emphasis added). They added: “Thus, amended Claims 1, 14, and 22 and the claims dependent from them should now be allowable.” Concluding their response to the anticipation rejection, the applicants stated:

Dittmar . . . discloses a heater/humidifier subassembly wherein the humidifier is retained within a compartment, separated from a hollow center . . . Air freely flows through this hollow center which acts as a duct for air flow and within which are heating elements. Therefore, Dittmar’s humidification means is not in the path of travel of the gas, the heating means is not disposed within the humidification means, and the humidifier does not comprise a volume of water in flow communication with the gas, as claimed by applicants. As a result, even without the additional limitations provided herein by amendment of the claims, applicant’s invention is not anticipated by Dittmar. (emphases added)

Eventually, on November 2, 1994, the Examiner allowed the pending claims.

Reviewing the prosecution history, the district court concluded that the applicants had effectively disclaimed a “means for humidifying” that was not in the path of travel of the gas, i.e., where air freely flows past the humidifier, as well as a “means for heating” not disposed within the humidification means. Accordingly, the district court instructed the jury that, as far as claims 11 and 12 of the ’474 patent were concerned, Lexion had surrendered a humidifying means where “gas flows freely past a humidifying bed.” At the same time, the court defined the heating means as a structure found “within” the humidifying means.

On appeal, Northgate takes the position that the district court did not err in its construction of the part of limitation (a) of claims 11 and 12 which relates to “means for

heating” and “means for humidifying” or in its instructions to the jury. It argues, however, that the jury verdict of infringement is not supported by substantial evidence, in view of the structure of its Humi-Flow device. In response, Lexion contends that prosecution disclaimer was improperly applied by the district court to the asserted claims. Nevertheless, it argues that the verdict of infringement, which it says was rendered under an incorrect claim construction based on disclaimer, is supported by substantial evidence.

We agree with Lexion that the applicants’ response to the February 1, 1994 office action did not trigger a prosecution disclaimer with respect to the asserted claims. In our view, the attempt to distinguish Dittmar was limited in scope to those particular claims that explicitly recited the allegedly disclaimed subject matter. As noted, on February 1, 1994, the Examiner rejected then-pending independent claim 1 and its various dependent claims, as well as independent claims 14 and 22, as anticipated by Dittmar. Except for application claim 22, the rejected claims which the applicants did not cancel (claims 1-3, 6, 7, 9, 10, 14, and 15) recited, in relevant part, “a humidification means in the chamber that is in the path of travel of the gas” and a heating means “disposed within the humidification means.” Because the alleged disclaimer corresponds precisely with the limitations expressly recited in those particular claims, and was clearly in response to a rejection of those particular claims, any disclaimer must accordingly be limited to those claims, under our approach set forth in Golight, Inc., v. Wal-Mart Stores, Inc., 355 F.3d 1327, 1333 (Fed. Cir. 2004) (limiting disclaimer to the particular claims that explicitly recited the allegedly disclaimed subject matter, and declining to extend disclaimer to claims that did not). Here, the alleged disclaimer

clearly arose in connection with the rejected claims reciting a humidifying means “in the path of travel of the gas” and a heating means “disposed within the humidification means,” and any resulting disclaimer must therefore be limited to those claims. Because asserted claims 11 and 12 of the '474 patent, which were allowed on February 1, 1994, as application claims 17 and 18, do not recite those limitations, the prosecution disclaimer does not extend to them.

Northgate argues, however, that the disclaimer is not limited to only those claims explicitly reciting the allegedly surrendered subject matter, because the alleged disclaimer was also used to obtain allowance of then-pending application claim 22, which did not recite the limitations of a humidification means “in the path of travel of the gas through the chamber” and a heating means “within the humidification means.” We disagree with this reading of the prosecution history. First, as noted, application claim 22 was amended to include a limitation specifying that the claimed method was for use in “an endoscopic” procedure. We believe it was on that basis that the applicants argued that claim 22 was allowable. Second, examination of the material from the prosecution history set forth above reveals that the applicants’ statements did not implicate application claim 22. Instead, the applicants’ statements, which distinguished Dittmar on the basis of a humidifying means “not in the path of travel of the gas” and a heating means “not disposed within the humidification means,” were clearly directed to those claims that explicitly recited those features, as evidenced by the qualifying phrase “as claimed by applicants.” Claim 22 did not claim these distinguishing features, nor did previously allowed application claim 17 (corresponding to asserted independent claim 11) or previously allowed application claim 18 (corresponding to asserted dependent

claim 12). We therefore reject Northgate's attempt to extend the alleged disclaimer to these claims. In any event, we note that because the disputed statements in the prosecution history are subject to multiple reasonable interpretations, they do not constitute the clear and unmistakable surrender required to trigger prosecution disclaimer. See Golight, 355 F.3d at 1332.

In short, the means for heating and means for humidifying limitations of claims 11 and 12 of the '474 patent were considered by the jury under an incorrect claim construction. The result is that the jury's finding that those limitations were met in the accused Humi-Flow device necessarily is nullified. See Union Carbide Chems. & Plastics Tech. Corp. v. Shell Oil Co., 308 F.3d 1167, 1179 (Fed. Cir. 2002) (remanding for further proceedings without reaching the merits of the district court's underlying conclusions because the district court's judgment was based upon an incorrect claim construction).

B. "sensing the temperature of the gas as it exits the chamber"

As far as limitation (b) of claims 11 and 12 is concerned, the district court construed "sensing the temperature of the gas" to mean "the thermal temperature of the gas is measured by a device after the gas has been humidified, but prior to delivery into the patient." The district court did not, however, construe "as it exits the chamber."

Northgate contends that the "sensing the temperature of the gas as it exits the chamber" limitation requires that the gas temperature is measured directly and locally by temperature sensors positioned at the exit of the chamber. It urges that, under this construction of the limitation, the Humi-Flow device does not infringe, the reason being that it does not have a temperature sensor at the point where the gas exits the

chamber. Lexion responds that the disputed language imposes no such requirement. It maintains that indirect and remote measurement of gas temperature using temperature sensors internally embedded within the heater core, as in the case of the Humi-Flow device, is sufficient to meet this limitation.

We agree with Lexion. Claim 11 merely requires the measurement of whatever gas temperature exists at the exit of the chamber. It does not require any particular positioning of components relative to each other, nor does it specify that the temperature measurement must be performed directly rather than indirectly. We therefore find no error in the district court's construction of this disputed limitation. Furthermore, there is substantial evidence in the record that supports the jury verdict that this limitation is met in the accused device. During trial, Lexion presented testimony that the Humi-Flow device indirectly measures gas temperature by correlating the temperature of the heater core to that of the surrounding gas. Lexion also presented testimony that this indirect method of temperature measurement was effective for purposes of remotely detecting the gas temperature at the exit of the chamber. In view of this substantial evidence under the district court's proper claim construction, we see no basis for disturbing the jury's finding that this limitation was met in the accused device.

C. “gas . . . having a temperature within 2°C of the predetermined temperature”

Limitation (e) of claim 11 requires that the gas be delivered to the patient within 2°C of a “predetermined temperature.” Though its meaning was vigorously disputed by the parties, the district court never construed the “predetermined temperature” limitation. On appeal, Northgate contends that the “predetermined temperature” is a single

temperature point, whereas Lexion maintains that the “predetermined temperature” represents a range of temperatures. The parties therefore dispute the level of precision required by the claim language.

We agree with Northgate that the “predetermined temperature” is properly construed as a single temperature point. As an initial observation, the word “range” appears elsewhere in the language of claim 11 but is not used in limitation 11(e) to describe the “predetermined temperature.” This suggests that the applicants affirmatively employed the word “range” where that meaning was intended, but specifically declined to do so in connection with the “predetermined temperature” limitation of claim 11(e). Second, the specification of the '474 patent repeatedly contemplates the “predetermined temperature” as a single temperature point rather than a range. For instance, at column 5, lines 21-25, the specification states that “[a]s used herein, a ‘predetermined temperature’ is one that has been preset and is not altered during a procedure. For laparoscopic procedures the desirable [sic] predetermined temperature is physiological body temperature, i.e., approximately 36°-38° C.” (emphasis added). This passage clearly indicates that the predetermined temperature is the single temperature point that best approximates the patient’s body temperature. Likewise, Table 1, footnote (4) of the '474 patent’s specification describes various “listed temperatures indicat[ing] the range of temperatures from which the predetermined temperature was selected.” Col.11 ll.33-35. This language clearly conveys that the “predetermined temperature” is a single temperature point that is selected from a broader temperature range. Construing the “predetermined temperature” as a single temperature point therefore comports with the language of claim 11 and the '474

patent's specification. In contrast, Lexion's proposed construction contradicts this intrinsic evidence and also departs from the primary purpose of the invention, the delivery of gas that has been humidified and heated to human body temperature for use in laparoscopic surgery. We therefore conclude that the "predetermined temperature" is best viewed as a single temperature point rather than a temperature range. The jury did not have this construction before it when it considered whether limitation (e) of claim 11 was met in the accused device. Under these circumstances, the jury's finding that this limitation was met is nullified.

In sum, we have not affirmed the verdict of infringement insofar as it relates to limitations (a) and (e) of claims 11 and 12 of the '474 patent. We have declined to do so on account of reasons relating to claim construction, as discussed above. We therefore vacate the judgment of infringement and remand the case to the district court for further proceedings on the issue of infringement. See Harris Corp. v. Ericsson Inc., 417 F.3d 1241, 1260 (Fed. Cir. 2005) (vacating the jury verdict of infringement and remanding for further proceedings under the proper claim construction). We of course vacate as well the permanent injunction entered against Northgate.

#### D. Obviousness of the '474 patent

The district court declined to grant JMOL of obviousness following the jury verdict which found the asserted claims of the '474 patent not invalid for obviousness. On appeal, Northgate maintains that this ruling was in error. In support of this argument, Northgate provides extensive claim charts summarizing prior art references which allegedly teach every limitation of the asserted claims. Northgate urges that, under the principles articulated by the Supreme Court in KSR Int'l Co. v. Teleflex Inc., 127 S. Ct.

1727 (2007), it would have been obvious for a skilled artisan to combine these prior art references to achieve the asserted claims of the '474 patent. Having considered Northgate's arguments regarding obviousness, however, we see no error in the decision of the district court denying Northgate's motion for JMOL of invalidity of the '474 patent.

## VI

Lexion cross-appeals the district court's finding of no willful infringement with respect to Northgate's post-verdict liquidation of its Humi-Flow inventory. It also cross-appeals the district court's grant of JMOL that the '609 patent is invalid by reason of obviousness. We have considered the arguments raised in Lexion's cross-appeal, and have found no error in the district court's determinations on these issues.

### A. Willful Infringement

As noted, following the jury verdict of infringement, and prior to entry of an injunction by the district court, Northgate liquidated its remaining inventory of Humi-Flow devices. In so doing, it relied on an oral opinion from its counsel that, despite the jury verdict, the Humi-Flow did not infringe the asserted claims. The district court denied Lexion's subsequent motion for willful infringement. Instead, it awarded compensatory damages to Lexion, as well as the attorney fees incurred by Lexion in bringing its motion.

Preliminarily, we note that our vacatur of the judgment of infringement necessarily means that we also vacate the award of compensatory damages and attorney fees in favor of Lexion for bringing its motion with respect to willful infringement. At the same time it is appropriate that we address the district court's

ruling of willfulness. The reason is that the proceedings on remand could result in a reinstated verdict of infringement.<sup>3</sup>

On appeal, Lexion contends that the district court clearly erred in finding that Northgate's post-verdict sales did not constitute willful infringement. We disagree with Lexion, and affirm the district court's determination of no willful infringement. Under our decision in In re Seagate Tech., LLC, 497 F.3d 1360 (Fed. Cir. 2007), proof of willful infringement requires at least a showing of objective recklessness, id. at 1371. We do not think it was objectively reckless for Northgate to obtain and rely on the opinion of counsel, which had predicted a favorable outcome in view of the renewed motion for JMOL then pending before the district court. Although the district court ultimately denied that motion, Northgate's reliance on that opinion was nonetheless justified, as we have vacated the judgment of infringement and remanded for further proceedings based upon our new claim construction.

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<sup>3</sup> Northgate has not challenged the district court's award to Lexion of compensatory damages and attorney fees. If, after remand proceedings, the judgment of infringement is reinstated, the district court can reinstate as well its award of compensatory damages and attorney fees.

## B. Obviousness of the '609 patent

Prior to trial, the district court granted JMOL of obviousness with respect to the '609 patent. On appeal, Lexion contends that the district courts' grant of JMOL was erroneous for reasons which we find unpersuasive. The '609 patent simply modifies the invention described in the '474 patent via a simple and minor improvement: adding a recharge part that allows for the replenishment of water for extended use during laparoscopic surgeries. In KSR, the Supreme Court stated:

[w]hen a work is available in one field, design incentives and other market forces can prompt variations of it, either in the same field or in another. If a person of ordinary skill in the art can implement a predictable variation, and would see the benefit of doing so, § 103 likely bars its patentability.

Id. at 1731. We think that the '609 patent was nothing more than a predictable variation or improvement of the '474 patent that was well within the skill and ordinary creativity of a skilled artisan. We therefore affirm the district court's grant of JMOL of obviousness with respect to the '609 patent.

## CONCLUSION

For the foregoing reasons, we affirm-in-part, vacate-in-part, and remand for further proceedings consistent with this opinion. On remand, the district court should reconsider the infringement of the asserted claims of the '474 patent by treating the "means for humidifying" and "means for heating" limitations as construed without application of prosecution disclaimer, and by treating the "predetermined temperature" limitation as calling for a single temperature point. Because we vacate the judgment of infringement, we also vacate the permanent injunction previously entered against Northgate, as well as the district court's award of damages and attorney's fees in connection with the post-verdict sales and Lexion's motions. The district court may

reinstate the injunction and those awards in the event that a judgment of infringement is entered on remand.

Each party shall bear its own costs.